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COMPUTERWORLD

INSIDE

In Depth — An IS action plan for managing people. Page 89.



Profile: Gary Biddle started at American Standard when he was 18; now the IS chief is one of the owners, following a leveraged buyout. Page 67.

IBM ekes out 5% increase in sales and pretax profit for first quarter. Page 7.

HP's New Wave is object of desire for consortium being announced this week. Page 8.

FCC puts AT&T on hold with order to make Tariff 12 custom voice and data nets available to all who want them. Page 4.

Enhanced Microvaxes pack 50% more power for small price increase over predecessors. Page 10.

SIM Conference: Air Products and Chemicals reveals plan to disperse much of IS to business units. Page 125.



Profiles of nominees for the first *Computerworld Smithsonian Awards* begins with a look at one blood supply organization that cleaned up its distribution system. Page 17.

HP buys market lead, system overlap

BY HELEN PIKE
and J.A. SAVAGE
CW STAFF

Hewlett-Packard Co. bought itself the No. 1 slot in the hotly contested workstation market last week, edging past Sun Microsystems, Inc. with its purchase of faltering Apollo Computer, Inc.

The $476.4 million purchase presents HP with Apollo's networking technology and a large new customer base. But it also raises a whole series of marketing and technical issues. The two makers of reduced instruction set computers are known more for engineering expertise than pizzazz in a marketplace in which Sun made glitz a priority.

"We don't have delusions of grandeur," HP Chief Operating Officer Dean Morton said last week following the surprise merger announcement. "Apollo was never able to do what Sun did in creating excitement. And HP is not known as flashy."

Initial reaction from customers of both companies was mainly positive, however. Those users who have equipment from both vendors on-site expect the merger to produce tangible benefits (see story page 124).

But there are some major technical issues to be resolved where the two companies overlap. The critical discrepancy be-

Continued on page 124



Apollo's Vandersluice delivers —
- *4,450 employees*
- *Work-group networking strengths*
- *Graphics and RISC technology*
- *Large user base*
- *$653 million in revenue, eroded profits*
- *Proprietary operating systems*
- *Overmatched marketing efforts*
- *Weak low-end product line*

HP's Young brings —
- *Worldwide work force of 87,000*
- *$9.8 billion in revenue*
- *Track record of hardware reliability*
- *Support stability*
- *Wide-area networking expertise*
- *Market reputation*
- *Overlapping workstation products*
- *Lack of software support*



Gathering storm
- Prime looks for savior. Page 125.
- Wang cuts again. Page 8.
- Intel 1486 challenges RISC processors. Page 6.

Sparc dons PC colors

BY JULIE PITTA
CW STAFF

SAN FRANCISCO — Looking to move beyond its popularity with technical users, Sun Microsystems, Inc. last week made its boldest strike yet into the general computing arena.

With the introduction of its Sparcstation 1 — a Unix workstation offering 12.5 million instructions per second at a price of $8,995 — Sun now boasts a reduced instruction set computing machine in the price range of a very high-end personal computer. It also packs other PC features such as a graphical user interface — AT&T's Open Look for Unix — and optional software that allows it to run MS-DOS applications.

Scott McNealy, Sun president and chief executive officer, was characteristically brash in assessing the new workstation's chances in the PC market. "How do we compare with PCs? We're faster," McNealy said. "You want spreadsheets? We've got spreadsheets. You want word processing? We've got word processing."

However, widely used PC packages such as Lotus Develop-

Continued on page 124

PCs track oil spill damage

BY J. A. SAVAGE
CW STAFF

VALDEZ, Alaska — Saturday morning, March 25, Marshal Kendziorek was tying up loose ends in his office at Alaska's Department of Environmental Conservation in Juneau. Early the previous morning, the *Exxon Valdez* had split open on rocks in Prince William Sound, spilling thick crude oil into the bay.

Kendziorek, the department's head of data processing, knew he had work to do as a result of the spill, but he did not know what that work would entail until later that morning, when his boss told him to buy every laptop in town and get on a plane in 20 minutes.

"I've been in the war zone ever since," he said.

He boarded the military transport plane with three dissimilar laptops and set up shop in a commandeered room in the city's courthouse.

"The first day was utter chaos. We're just trying to get people to do word processing — the state had a mountain of paperwork," Kendziorek said.

Word processing quickly

Continued on page 125

EXECUTIVE REPORT

Chief execs rate IS

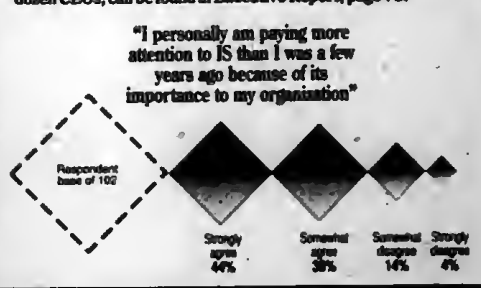
If you're in MIS, there's some good news and some bad news.

Chief executive officers say information systems are more important than ever to their businesses, but most are not completely satisfied with the performance of their own IS departments.

A recent exclusive *Computerworld* survey of more than 100 CEOs and top executives from Fortune 1,000 companies found concern in the executive suite about whether their IS infrastructures are up to the challenges of the next few years.

Clearly, IS now has the attention of the top business echelon. Of the executives surveyed, 82% said they are paying more attention to IS now than ever before. The consensus is, however, that things are not moving far or fast enough. This is crucial at a time when 88% of the CEOs are convinced that IS will significantly change the way their firms do business in the 1990s.

A detailed summary, along with interviews with more than a dozen CEOs, can be found in Executive Report, page 75.



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IN THIS ISSUE

NEWS

4 FCC spurs AT&T to ride the extra mile with its Tariff 12 offerings.

6 Speed may be the only whitecap Intel's 1486 will make in the chip waters.

6 IBM's MCA strikes up a band of support at Comdex.

7 CA braids old divisions into one, hoping for a neater appearance.

7 IBM wipes some of the egg off its face with not-so-bad earnings.

8 New consortium to ride New Wave.

10 Dynamic Microvax duo to pack a powerful punch for AS/400.

12 Unisys airs low-end System/80 addition, the first upgrade in five years.

12 NEC steps on some toes with high claims that it can outrun Cray supers.

14 Rollouts trundle through NET.

17 Technology is the heart of The Blood Center.

124 Sun warms workstation field with array of Sparc-based products.

125 Users cringe as Prime goes on auction block.

Quotable

"The computer room is our public utility. The IS chief is a resource for our general managers to call on. But he is not driving the boat."

GERALD E. SCHULTZ
BELL & HOWELL CO.

On the role of IS in formulating business strategy. See story page 75.

SYSTEMS & SOFTWARE

21 U.S., Japan engage in supercomputer tug-of-war.

25 Chrysler cruises down a Unix road.

PCs & WORKSTATIONS

35 Information centers run on a chargeback basis may offer better service, efficiency.

37 A medley of workstations are making beautiful music together at MIT.

NETWORKING

57 ISDN workstation catches Shearson's eye.

57 Telecommunications makes the world go 'round.

MANAGER'S JOURNAL

67 Bit of this, byte of that spice restaurant and hotel management.

COMPUTER INDUSTRY

97 Foreign sales sweep domestics into the dustpan.

EXECUTIVE REPORT

75 Top executives may not use computers, but they know IS is the future.

IN DEPTH

89 High-tech gizmos aren't the only tools used in successful IS projects. By Gopal Kapur.

DEPARTMENTS

8 News Shorts
18 Editorial
69 Calendar
106 Computer Careers
114 Marketplace
120 Training
123 Stocks
126 Trends

Berkeley professors lay their groundwork for networks of the year 2010. Page 57.

UPDATE

From last week's Society for Information Management conference, here's a list of dos and don'ts for dealing with a corporate acquisition from Baxter Healthcare MIS Chief Mike Heschel, who should know: **Do** understand new management's expectations; **Do** establish a management team for your operation quickly with the best people you can find; **Do** get users involved right away; **Do** go ahead with key decisions; **Do** plan and communicate.

Don't tell management what they need; **Don't** expect people to adjust quickly to change; **Don't** assume users will accept your system choice; and finally, **Don't** rely on save-the-world consultants who don't have to live with the results of their advice.





MIT research 'conductor' with musical mixture of PCs and workstations. Page 37.

STELLA JOHNSON

EXECUTIVE BRIEFING

■ **Rollouts and shakeouts** in technical computing: Hewlett-Packard becomes the top workstation maker as it scoops up faltering Apollo for just under $500 million. HP is expected to continue both product lines for now but adopt Apollo's networking strategy, **page 1.** Disappointed Prime users begin to search for other options as the company puts itself up for sale in a last-ditch effort to fend off a hostile takeover by MAI Basic Four. Most observers think Prime will not survive the takeover in one piece, **page 125.** How does 12 MIPS, 8M bytes of memory and 200M bytes of disk storage for $13,000 sound? Sun will sell it to you, **page 1.** Intel foresees 20-MIPS desktop machines based on its I486 chip by the end of the year, but users will get little benefit from the processor other than speed, **page 6.**

■ **CEOs and top executives** in Fortune 1,000 companies are buying into the idea that information systems are critical to their survival, but more than half say their current systems are not giving them their money's worth. Meanwhile, a small band of technology-wise CEOs is urging its IS managers to move to the leading edge, **page 75.**

■ **Why are so many projects** over budget and behind schedule? Because many IS operations still don't know how to best manage human resources. There's a basic action plan for bringing those projects under control: be seen as a true department leader; spend time with employees, management and key users outside of the crisis-mode situation; delegate responsibility; and make sure it stays delegated. **Page 89.**

■ **IS holds the key** to business competition in the 1990s, if it doesn't blow the opportunity, an author and MIT professor says. A big step is to stop justifying everything to your management in terms of cost savings and start telling them how your systems will expand business opportunities. **Page 75.**

■ **Chargeback can be good** for users as well as information centers, some users are finding. A business relationship makes users more responsible for their actions and forces the information center to treat them more like customers. **Page 35.**

■ **Forming IS partnerships** with line management is just as important as allying with CEOs, members of the Society for Information Management were told last week. If users feel close to the technology, they're more likely to come up with innovative ways to use it. **Page 125.**

■ **Unix systems are finding their niche** as a partner for IBM mainframes. IBM sites such as McDonald's, Bank of America, Pacific Bell and DHL Worldwide Express are proving it, **page 21.** Chrysler Financial installed 124 Unix minis in branch offices, even as its IBM mainframe complex was growing. Offices get local processing and host access, **page 25.**

■ **Turn to users for technical writing,** some IS professionals advise. Programmers may see the move to producing documentation as a step down and may do a poor job as well. But users are often better at explaining computer systems to people like themselves. **Page 106.**

■ **Technology briefs:** NEC says its new line of supercomputers runs at up to eight times the peak speed of Cray's top-of-the-line system, **page 12.** DEC's new Microvaxes will deliver as much as 50% more performance than the models they replace at a 5% price increase. They're targeted against the high end of the AS/400 line, **page 10.**

■ **Users aren't flocking** to MS-DOS 4.0 in droves. Many have already found other alternatives to the new pretied-up version of Microsoft's operating system. **Page 35.**


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Three new platforms for SAS

BY JEAN S. BOZMAN
CW STAFF

SAN FRANCISCO — SAS Institute, Inc. users last week got an early look at unshipped products that extend SAS System software to three new platforms — IBM's Personal System/2 running OS/2, Apple Computer, Inc.'s Macintosh and Apollo Computer, Inc. workstations.

"What you're seeing now is the result of five years of design for our Multivendor Architecture," SAS Institute President and co-founder James Goodnight told *Computerworld* during an interview at the SAS User Group International (SUGI) meeting here. "We wanted to develop a host-level [software] platform that we could put on top of anyone's hardware."



SAS' Goodnight *wanted host-level software to go on 'anyone's' hardware*

Goodnight wants to provide a single application environment from IBM mainframes to departmental file servers and desktop personal computers.

The move parallels a marketing effort to extend SAS System sales beyond the firm's traditional university and scientific markets and onto commercial desktops from Main Street to Wall Street.

The $170 million software firm is also set to roll out an entirely rewritten version of its SAS System code, called Version 6.0, beginning with PC-DOS versions in May.

The debut is slated to be complete by the next SUGI meeting 12 months from now, according to the Cary, N.C.-based company. The new code is expected to run on all supported machines except the Macintosh with little or no change.

The new SAS System 6.0 code, written in the higher level C language, will let SAS Institute quickly port its statistical-analysis and report-writing packages to a variety of hardware environments. Users will receive the Version 6.0 code at no additional charge beyond the annual license fee.

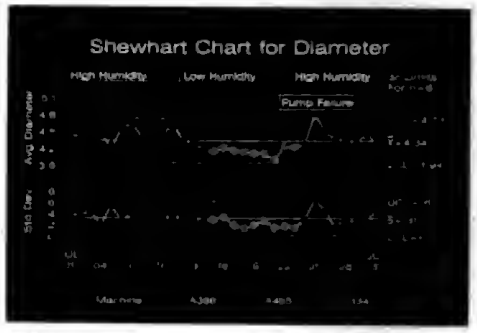
Goodnight said 90% of MVA code is completely portable to new hardware platforms. As a result, the SAS System user interface looks the same whether it is running on an IBM 3090 or a PS/2, he noted.

Despite frequent assurances to the contrary, some users worried that SAS System Version 6.0 would require a time-consuming conversion. "In the mainframe environment, you can't move as quickly when new products come down the road," said David Christ, an MIS manager at National Computer Systems in Iowa City. National Computer uses SAS on two IBM 3084s running the MVS/XA operating system.

But most users seemed pleased with the new SAS code. Although firm dates have yet to be set for shipping the IBM OS/2 and Macintosh products, the Apollo software is set to ship in the fourth quarter, SAS Institute spokesmen said. The OS/2 software uses Microsoft Corp.'s OS/2 Presentation Manager to provide windowing features and icons.

The Macintosh product, called JMP, provides a subset of SAS System functions under the Macintosh operating system. But it is still in the testing phase and has not been priced.

SUGI's exhibit floor also contained a view on yet another future SAS product — one that would provide transparent queries to an IBM DB2 relational database management system under SAS System 6.06.



SAS/QC *is one of several products being readied for PCs*

AT&T ordered to open Tariff 12 to general use

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — AT&T must revise Tariff 12, which provides custom voice and data networks for large customers, to ensure that the integrated services are available to all companies that seek them, the Federal Communications Commission decided last week.

As a legal matter, the FCC rejected the existing Tariff 12 on grounds that its provisions are too narrowly defined for specific customers. AT&T has signed Tariff 12 contracts with such national accounts as General Electric Co., Du Pont Co., Ford Motor Co. and American Express Co. [CW, Feb. 27].

The fact that the FCC did not pull the plug on the existing Tariff 12 contracts was good news for those pioneer users. Stanley Welland, manager of corporate telecommunications at GE in Fairfield, Conn., said he is very pleased by the FCC decision.

The FCC order was, in fact, largely a victory for AT&T because it states that bundling various voice and data services for custom networks is legally permissible. AT&T can win FCC approval for Tariff 12 by using less specific terms that make the services more generally available.

For example, AT&T is required to remove language that effectively limits one of the Tariff 12 options — written for Du Pont — to customers with headquarters in Wilmington, Del., said Gerald Brock, chief of the FCC's Common Carrier Bureau.

"The Tariff 12 concept is OK . . . but Tariff 12 must be offered in reasonably general ways," Brock said. The Communications Act of 1936 requires tariffed services to be generally available to avoid discrimination among customers.

AT&T may refile Tariff 12 in about 30 days, once it removes language that restricts its availability to specific customers, the FCC ruled. In the meantime, the existing Tariff 12 customers can continue to get the service.

In a key legal determination, FCC officials said that bundling tariffed services together is permissible because the integrated service is a distinct product that customers perceive as having greater functionality than the individual parts.

All customers who want a service "substantially similar" to one offered under Tariff 12 must be able to get it, FCC officials said. "What we are emphasizing in this order is customer rights," Brock said.

The FCC order establishes a process allowing companies that feel that AT&T has discriminated against them to file a complaint, which will then be investigated.

In the unlikely event that AT&T does turn down a prospective customer for Tariff 12 services and a complaint is filed, "We will take those things very seriously," Brock said.

Another deregulation question

During the Tariff 12 debate last week, Chairman Dennis R. Patrick asked the FCC staff to begin work on a review of competition in the long-distance market, which could lead to further deregulation of AT&T. The surprise comment was made in response to arguments by Commissioner Patricia Diaz Dennis, who has long sought a proceeding to reassess AT&T's status as a "dominant carrier" subject to tariff regulation.

Instead of last week's order, Dennis said, the FCC should have opened a broad inquiry to determine whether AT&T should be freed from tariff regulation in the competitive big-business market targeted by Tariff 12. By failing to address this issue and by "straining to give tacit approval to a Tariff 12-type arrangement," the FCC could be accused of back-door deregulation of AT&T, she said.

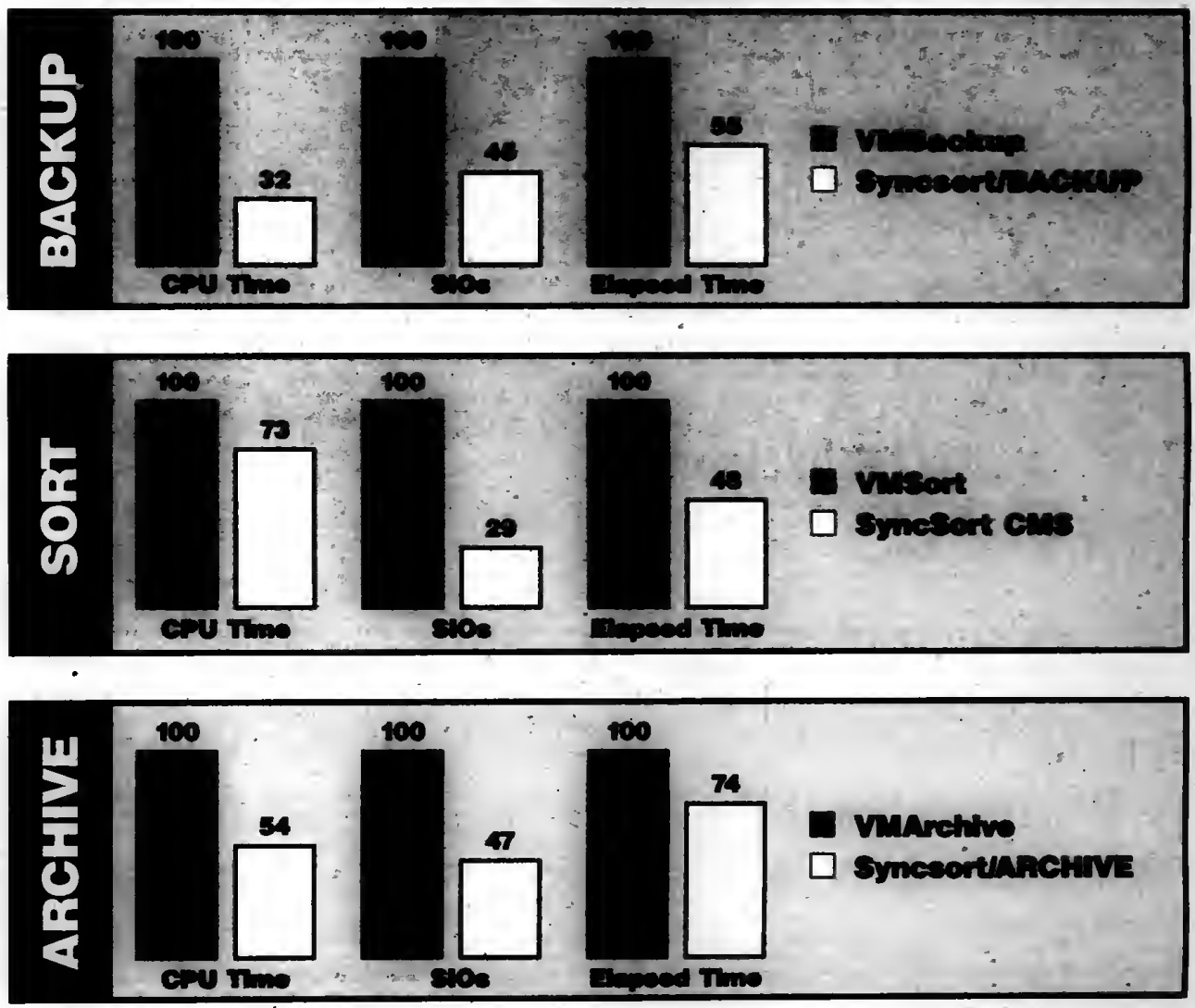
Furthermore, Dennis suggested that Tariff 12 may be overturned in court because its discount rates for private lines and other transmission services are discriminatory, since the discounts are not offered to other customers.

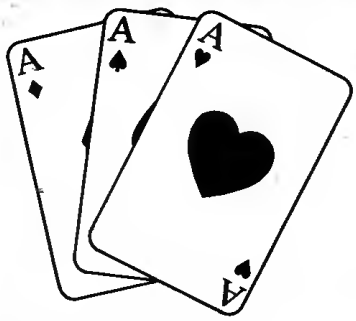
MITCH BETTS

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Intel's breakneck I486 bows

BY DOUGLAS BARNEY
CW STAFF

CHICAGO — The Intel Corp. I486 chip may not revolutionize computing, but it sure will make it a heck of a lot faster.

With a sprinkling of other new Intel chips, including the 33-MHz 80386 (see story below) and a special chip for laptops, high-performance Intel-style computing will have broader appeal, company officials claimed.

In an announcement at Comdex/Spring '89 here last week, Intel said that by 1992, it will produce a multiprocessing version of I486 that runs at more than 120 million instructions per second (MIPS). Prime Computer, Inc. will co-develop the product, said David L. House, senior vice-president and general manager of Intel's Microcomputer Components Group.

For those unwilling to wait for 120 MIPS, this fall should bring personal computers and servers running at 15 to 20 VAX MIPS, according to Intel spokesmen. That type of performance is aimed at keeping users happy and reduced instruction set computing (RISC) makers at bay, Intel officials said.

"It may not be as fast [as RISC chips], but it runs MS-DOS and OS/2 faster than anything else," said Michael Slater, editor of the "Microprocessor Report." Slater's publication predicts initial I486 PC prices in the $10,000 to $15,000 range.

Intel, along with high-profile PC software vendors at the announcement, pointed to backward compatibility as the I486's key strength. The I486 is structurally similar to the 386 and will run software and operating systems written for Intel 8086, 8088, 80286 and 386 chips.

As a result, software vendors will write little or no software that is specific to the I486. When OS/2 for the 386 ships next year, systems software will have finally caught up with hardware, reported Microsoft Corp. Chairman Bill Gates.

One major difference of the I486 is that it contains a built-in math processor, while the 386 requires a separate chip.



DAVID JOEL

Microsoft Chairman *Gates puts the I486 through the paces at Comdex*

While users will not gain added processor features, they reportedly will derive some impressive performance benefits. The I486 will be available in the third quarter and will run at either 25 or 33 MHz.

However, that MHz rating is rapidly becoming a misnomer. For example, when comparing a 386 with a math coprocessor, the I486 will run 2½ to three times faster on integer calculations, and three to four times faster on floating-point operations, officials said. Much of the added performance is achieved by using "pipelining" and RISC techniques to execute instructions with fewer clock cycles.

Intel will double the speed of the I486 within two years to 50 to 60 MHz, said Claude M. Leglise, marketing manager at Intel's Santa Clara, Calif., microprocessor division. In more up-to-date terms, that would be 30 to 40 VAX MIPS. Intel sees a many uses for the I486, including file servers, minicomputers, workstations and PCs.

Most users interviewed last week said they initially envision server and workstation-style uses.

"I see this as being the file server of choice for large LANs. It could also move easily into the graphics workstation environment," said Frank Tyner, assistant staff manager of information systems planning and standardization at Bell Atlantic Corp. Of some 2,000 PCs that Bell Atlantic buys each year, only a small percentage will be I486-based because of the cost, Tyner said.

The I486 chip is in beta testing and will be available in volume in the fourth quarter, the company said. The price is $950 each for quantities of 1,000.

Part of the Intel crowd

Intel rounded up some well-known troops to make its chip announcement the splashiest at last week's Comdex/Spring '89.

A roster of 11 PC vendors announced products based on the recently shipped 33-MHz 386. These vendors include Acer Technologies Corp., Advanced Logic Research, Inc., Altos Computer Systems, Inc., American Megatrends, Inc., AST Research, Inc., Everex Systems, Inc., Hauppauge Computer Works, Inc., Micronics Computers, Inc., Ing. C. Olivetti & Co., Philips Telecommunications N.V. and Zenith Data Systems. Visibly missing were 386 leaders IBM and Compaq Computer Corp., which did disclose intentions to build a 33-MHz machine.

Eighteen vendors pledged to build products based on the I486, including Sun Microsystems, Inc. and Compaq Computer Corp.

For large systems fans, Sequent Computer Systems will use the I486 in a Unix-based multiprocessing system. The firm already sells the Symmetry series, which uses up to 30 Intel 386 processors to achieve 120 MIPS and supports up to 1,000 users.

DOUGLAS BARNEY

Microsoft, DCA to bid SNA servers

BY PATRICIA KEEFE
CW STAFF

SANTA CLARA, Calif. — Microsoft Corp. and two development partners, including Digital Communications Associates, Inc., will unveil their answer to IBM's Communications Manager tomorrow.

Microsoft will reportedly unwrap two Systems Network Architecture (SNA) servers, including DCA's Select OS/2 Communications Server line, announced last March.

Select Server — along with the yet-to-be-delivered Microsoft/Sybase SQL Server — will provide users with alternatives to the comparable components of IBM's OS/2 Extended Edition, improving their ability to customize their networks [CW, March 14 and 21, 1988].

The key benefits for OS/2 users are lower costs, less overhead and improved host access. Select is server-based and licensed. Initially, OS/2 Extended will load up each personal computer with a separate host link, OS/2, the Communications Manager and SNA hardware.

Select Server's capabilities — plans include 3270, LU6.2, X.25, Synchronous Data Link Control and Enhanced Communications Facility support — will enable OS/2 work groups to better tap into IBM hosts, claimed John Bacon, DCA's vice-president of LAN Products.

As MCA flourishes, IBM tackles bus mastering

BY WILLIAM BRANDEL
CW STAFF

After two stormy years marked by controversy and derision toward the Micro Channel Architecture (MCA), IBM used Comdex/Spring '89 to validate MCA as an industry standard.

Almost every major personal computer reseller, including Businessland, Inc., Microage, Inc., Nynex Business Centers, Sears, Roebuck and Co. and Inacomp Computer Centers, Inc., voiced its support for MCA and the Personal System/2 line at an IBM pep rally.

Later, officials from Microage and Businessland both stressed that MCA product demand from corporate customers is strong and that their customers are calling for bus-mastering products. Bus mastering is a technique by which multiple processors can separately address the system's bus and therefore simultaneously access memory and peripheral devices.

IBM used the Comdex forum to display new bus-mastering products, some of which have yet to be announced or shipped. At a private demonstration held for the press last week, IBM's Entry Systems Division President James Cannavino hinted that MCA has capabilities that are currently unseen, emphasizing that it is "the architecture of the future."

In addition to the four bus masters IBM demonstrated last fall at Comdex/Fall '88, IBM showed the following prototypes:

- Bus-master cards based on Intel Corp.'s I860 reduced instruction set computing processor. Applications included Landsat analysis, medical imaging and fractal geometry.
- Another I860 bus-master implementation boosted the graphical image display of Autodesk, Inc.'s Autocad by a factor of eight.
- IBM also showed Renderman, an application from Pixar, Inc. in San Rafael, Calif. Renderman is a computer animation application that uses an I860 bus master. The product won an Oscar for its ability to produce *Tin Toy*, a short film created almost completely by computer.

Third-party bus-master products included the following:

- An Ethernet bus master from Bicc Data Networks, Inc. in Westboro, Mass.
- An enhanced small device interface bus master from Core International in Boca Raton, Fla.
- A facsimile bus-master card from Pacific Images, Inc. in Pasadena, Calif. This card was demonstrated in conjunction with IBM's Imageplus bus-master card for image processing.



DAVID JOEL

IBM *bashed in PC resellers' glowing support of MCA*

IBM also showed some of the potential of the Intel I486 processor by demonstrating a PS/2 Model 70 with an I486 chip in place of the original 80386. The machine flashed complex images to show the speed with which the I486 can handle instructions.

Cannavino said that the 486 will be available in volume shipments at the end of 1989. IBM will ship products in both system and bus-master form during the first quarter of 1990, he added.

Currently, there are 2,400 MCA product development identifications in distribution, and 175 of them are bus masters.

To ensure compatibility among non-IBM vendors' MCA-based products and MCA adapters, the National Software Testing Laboratories, Inc. in Plymouth Meeting, Pa., unveiled testing suite.

IBM Q1 earnings increase restores confidence

BY NELL MARGOLIS
CW STAFF

ARMONK, N.Y. — IBM last week announced a first-quarter revenue rise of 5.6% over last year's comparable period, with net earnings up 1.8%. Those figures were sufficiently solid to restore to the computer industry some of the balance blown away by the computer giant's March warning that its quarterly results would underperform expectations, according to analysts.

"IBM is not having a disaster," said David Wu, an analyst at S. G. Warburg & Co., a New York-based investment research company. "I think that all the teeth-gnashing and groaning of the past few weeks has been overdone." The $12.7 billion in revenue and $950 million in net earnings logged by IBM marked "a pretty decent quarter — not great, but decent," Wu said.

Other analysts agreed. "This is like going to the dentist expecting to have five teeth pulled and finding that you only need a cleaning," said Mike Geran, who follows IBM for Nikko Securities Co., International, another New York investment research firm.

Earnings per share for the quarter were $1.61, up 2.5% over last year's first quarter, a figure that analysts said was in line with their revised expectations.

A domestic vs. international sales breakdown has not yet been released and is expected within the next week, analysts said. Wu said he expects to see an approximately 50-50 split.

Akers cites strengths

IBM Chairman John Akers noted that the company's shipments, as well as revenue and earnings, were higher than those of a year ago. First-quarter results "improved despite a short-term chip shortage that affected some large system shipments," Akers said in a prepared statement. Citing "our improving customer partnerships as well as our restructuring actions" as particular strengths, Akers said, "We continue to plan for growth."

A recent torrent of doubts on that score was unleashed by IBM when it issued last month's warning blaming chip problems for a slowdown in 3090 shipments. "When they said below plan, everybody jumped to the conclusion that they meant *way* below plan," Wu said. "I think we lost sight of the fact that IBM can tend to be on the conservative side."

In addition, Geran said, "What you're dealing with here is scale." With a company as large as IBM, he said, small percentage increments translate into huge dollar increments. "I think we have a tendency to forget that," he said.

CA reorganizes, moves to boost support ranks

BY ROBERT MORAN
CW STAFF

GARDEN CITY, N.Y. — Computer Associates International, Inc. restructured operations last week to eliminate some of the visible signs of its acquisitive growth en route to becoming the world's largest independent software vendor.

Sanjay Kumar, vice-president of product planning, confirmed that the former Information Products Division (IPD) and Systems Product Division (SPD), formed after the acquisition of Applied Data Research, Inc., have merged into what is now called the Information and Systems Product Group (ISPG).

Bryan Shepherd, the former president of SPD, will hold that post in the new ISPG. Arnold Mazur, who headed up the IPD, will become president of the Financial and Micro Products Group, which will be responsible for niche markets such as banking and multivendor environments, including those with both IBM and Digital Equipment Corp. processors.

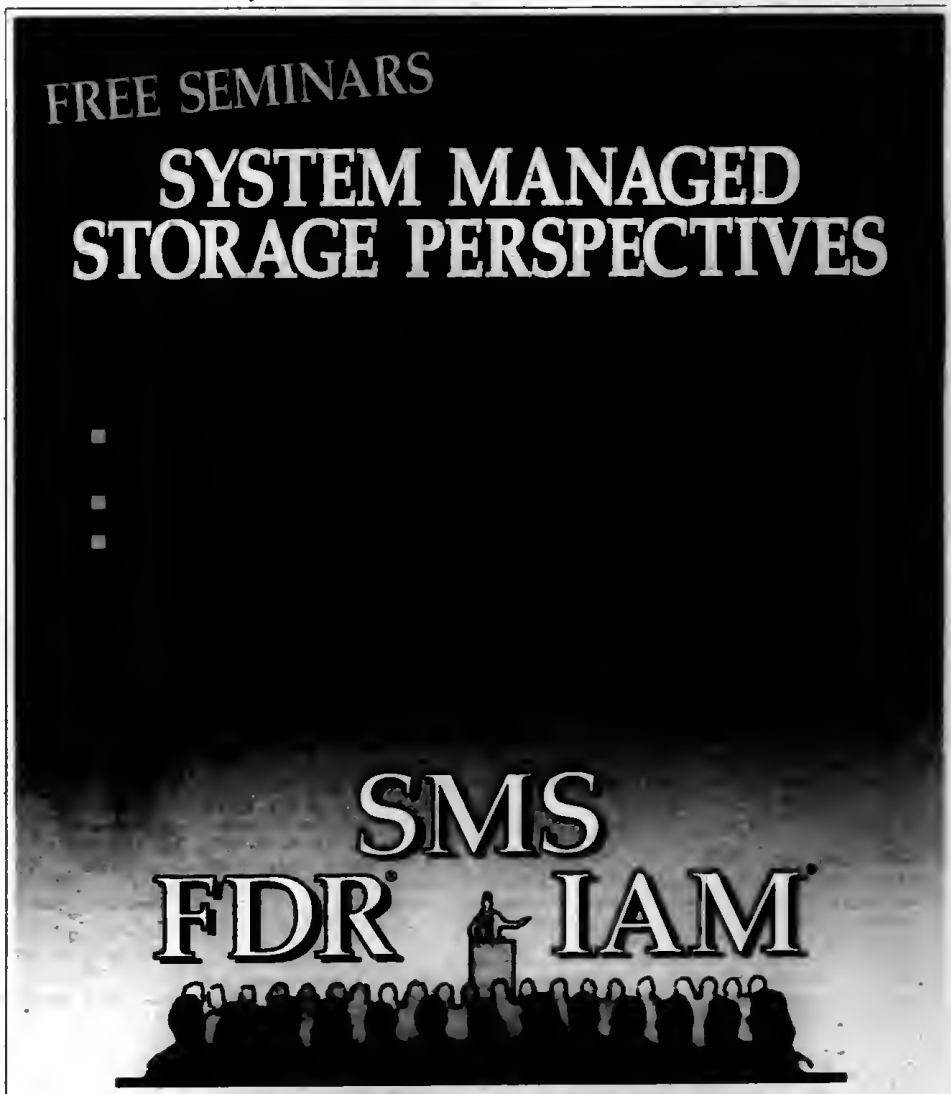
The restructuring, according to Kumar, did not result in companywide layoffs. However, he said, "If you talk to a salesman who has reached 1% of quota, he may have a different perspective."

CA customers have previously complained of being inundated by visits from numerous CA account managers. With the reorganization, each client will have one CA account manager and one presales technical expert, said Kumar, who added that customers were being notified of the changes by mail.

In addition, field support and service will be enhanced. "The new structure will result in a 30% increase in the number of technical people in the field," Kumar said.

The company has tied a new administration database to the company's service and support database. The new system will give CA on-line access to all client records, which now have a single site identification number and allow CA to monitor all sales and support activity.

In addition, Kumar said that the changes will prepare CA to follow its acquisitions strategy. "The new database will expedite a smoother transition of clients in future mergers and acquisitions," he said.



NEWS SHORTS

EDS claims win over Perot

Electronic Data Systems Corp. (EDS) founder and former Chairman H. Ross Perot may have sustained a crushing blow when a Virginia judge last week issued a permanent injunction preventing the Texas billionaire's new company, Perot Systems Corp., from engaging in or contemplating any for-profit business before Dec. 1. The judge also denied Perot's claim that he can hire EDS employees indefinitely. Such hiring rights will end in 1991 and are limited to EDS workers who were employed by the company in 1986, the judge said.

IBM shows a new face

"This is not the IBM I thought I knew," says a "customer," candidly discussing how IBM provided a business solution. The "customer" is one of several actors featured in an IBM ad campaign designed to portray the industry giant in a more flattering light. The television and print campaign reflects the company's latest emphasis on responding to customer needs. The ads, which follow a long-running campaign featuring Alan Alda and other actors from the television show *M*A*S*H*, portray a diverse range of customers from small start-ups to Fortune 100 firms to drive home the theme that IBM delivers solutions.

Apple, Microsoft, HP in the trenches

The Apple Computer, Inc. suit against Microsoft Corp. and Hewlett-Packard Co. appears headed into long-term warfare with depositions extending into 1990. A San Francisco judge last week set a timetable for the fight over whether Microsoft Windows 2.03 and HP's New Wave software infringe on Apple copyrights. U.S. District Judge William W. Schwarzer, who last month ruled that a 1985 license between Apple and Microsoft was a valid contract, said the next phase will be an attempt to determine the validity of Apple's copyrights and whether Apple derived its Macintosh display from Xerox Corp.

Taking the free-lunch route

Schlumberger Technologies, Inc.'s CAD/CAM Division is making it easy to switch to Digital Equipment Corp.'s Vaxstation 3100. In fact, it's giving it away. For a limited time, Schlumberger will throw in a free Vaxstation 3100 to buyers of selected software packages.

RTI projects loss

Relational Technology, Inc. (RTI) said last week it expects third-quarter revenue to fall short of analysts' predictions. RTI, maker of the Ingres database management system, estimated quarterly revenue at $28 million, for a net loss of $1 million to $2 million. RTI President and Chief Executive Officer Paul Newton blamed the shortfall on the firm's "closing of fewer than anticipated large transactions at the end of the quarter."

EMC counters IBM

Hard on the heels of IBM's stepped-up promotion of its high-end 3090s, EMC Corp. offered temporary price reductions last week on selected central storage upgrades for 3090E mainframes. EMC will reduce the price for 64M-byte upgrades shipped before Sept. 30 and installed before Oct. 30 from $378,000 to $290,000. Pricing for the initial upgrade that is required to bring systems from 32M to 64M bytes remains unchanged at $180,000.

King named CEO at Software AG

Software AG of North America, Inc. named Michael J. King president and chief executive officer last week. King takes over from interim President and CEO Peter Page, who is executive vice-president of Software AG Darmstadt, which owns the North American subsidiary. King was most recently president of Computer Entry Systems Corp. in Silver Spring, Md. Software AG also announced preliminary worldwide revenue for 1988 at more than $220 million.

Group to support HP's New Wave as standard

BY AMY CORTESE
CW STAFF

Hewlett-Packard Co. plans to drop another bombshell this week. The company's New Wave application environment will serve as the focal point of an unlikely consortium of vendors hoping to standardize on a method of managing objects.

According to several companies involved and analysts familiar with the announcement, the Object Management Group (OMG), as the consortium will be called, supports New Wave as a proposed open standard for managing objects. The firms participating in the announcement include Data General Corp., Unisys Corp., Prime Computer Inc., Philips N.V., Gold Hill Computers, Inc., Canon, Inc., 3Com Corp. and HP.

Object-oriented design has garnered much interest lately among vendors and end users as a way to simplify many aspects of software programming.

New Wave, introduced last year, combines object-oriented software with a graphical user interface to ease integration of data and files across applications.

Although OMG is a diverse group composed of members with different agendas, the companies are expected to announce that they will incorporate New Wave into future products.

While New Wave is based on Microsoft Corp.'s Windows, it is the object management facility, "the core of New Wave," that OMG members will be implementing, said Judith Hurwitz, an analyst at Patricia Seybold's Office Computing Group.

Keeping track

The object management facility creates and manages objects that are linked to the application from which they were created.

For example, users can combine many object types such as spreadsheet, text and graphics from different applications to create compound documents. The object management facility keeps track of where the objects are located and automatically updates them if the original is changed.

Conspicuously absent from the new group are Digital Equipment Corp. and IBM, who work closely with HP as co-founders of the Open Software Foundation, but have their own strategies for creating compound documents and sharing data across applications.

While New Wave is currently available only for MS-DOS-based personal computers, analysts said HP is likely to use newly acquired Apollo Computer, Inc.'s Network Computing Facility (NCS) software to build distributed, multiple-platform capabilities into future versions.

NCS has been licensed by HP, as well as IBM, DEC and others. DEC and Apollo are involved in a joint development agreement to extend NCS and its remote-procedure call features. In February, the firms stated that the resulting technology would be offered to standards bodies as an open specification. A DEC spokesman last week said he was not sure how HP's acquisition of Apollo would affect the agreement.

Wang to idle 2,200 workers by 1990

BY PATRICIA KEEFE
CW STAFF

LOWELL, Mass. — After a month of dodging rumors of cutbacks, Wang Laboratories, Inc. last week said it will eliminate 2,200 positions by June 1990. Attrition will account for most of the cuts, although a spokesman would not rule out layoffs.

This downsizing in focus will affect those groups seen as less strategic. The first to feel the sting of the ax is expected to be Wang's Micro Systems Division (MSD).

Sources inside and outside the company said the struggling division has been reeled back under the wing of Richard Orlando, a vice-president of sales and support, triggering the departure of two key executives.

After weeks of denying reports of a shakeup at MSD, Wang last week declined to comment on reports that both MSD Senior Vice-President and General Manager Harold P. Ano and Graham Beachum, its vice-president of sales and marketing, were on the way out.

Both Ano, who is said to have close ties to company President Fredrick Wang, and Beachum were reportedly on vacation last week and could not be reached for comment. After initially promising a statement, a spokesman later said it could not be provided "just yet."

"Wang has to be making some deeper cuts in underlying structural costs, and [MSD] has to be one of those candidates," said Steven Wendler, an analyst at Gartner Group, Inc. in Stamford, Conn.

Unfilled job vacancies have been building since November, but Wang is also hiring in other areas to bolster a newly redefined strategic direction — sales of imaging systems into vertical markets, a spokesman said.

It does not make sense for Wang to "try to compete with [IBM by] selling across the board to all markets," the spokesman added. "We want to be more focused by 1990."

Wang's worldwide employment today is estimated at 30,700. Wang said these levels are expected to drop to fewer than 30,000 by June 30, 1989, and to fewer than 28,500 by June 30, 1990.

Allen, Texas-based Intecom, Inc., Wang's private branch exchange subsidiary, is apparently a discard candidate also. The unit reportedly is priced at $100 million.

In a statement issued last week, Wang would only say it has "continued to look for opportunities to maximize the best value of Intecom by leveraging its assets and strengths in a manner that is in the best interests of [both firms, their] employees and customers. Wang remains committed to Intecom and to achieving these objectives."

Senior Editor Nell Margolis contributed to this story.



DAVID JOEL

Dr. An Wang *demonstrates a LAN-interfaced version of Wang Laboratories' Freestyle user interface and input package at Comdex last week*

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1. IBM Journal of SAA 2: DATAPRO survey, August 1988, companies with sales over $10 million 3: Donaldson, Lufkin & Jenrette report

Microvaxes aim for AS/400

BY JAMES DALY
CW STAFF

MARLBORO, Mass. — The opening bell sounded last week on what could become a full-tilt midrange battle of the titans as Digital Equipment Corp. unveiled a pair of Microvaxes that square off against the high end of IBM's successful Application System/400.

The Microvax 3800 and 3900 were the centerpieces of the company's third major package of announcements in as many months. DEC officials said the duo replaces the 19-month-old Microvax 3500 and 3600 by delivering as much as 50% more performance at only a 5% increase in price.

The additions highlighted DEC's increasingly sophisticated semiconductor technology by using the same CMOS microprocessor unveiled with the VAX 6300 in January; that chip can process 3.8 million instructions per second. DEC said the 3800 and 3900 start at $81,000 and $120,200, respectively.

Additionally, DEC introduced the ESE20 solid-state electronic storage element, which they said boosts performance on larger VAX systems as much as 50%.

Other product shuffling included the following:

- The introduction of a Vaxserver 3800 and 3900 system based on the Microvax 3800 and 3900.
- An RTVAX 3800 real-time computing platform.
- A revamped entry-level Microvax 3300, along with price cuts on the Vaxserver 3300.
- Price reductions on the Microvax 3400, the original Microvax 3300 and operating system and applications software for both.
- The rollout of five Microvax upgrade packages, including some for upgrading from Microvax 3500 and 3600 systems to 3800 and 3900 systems.

DEC officials said they believe the new Microvaxes can crawl through a recently opened midrange window of opportunity. "Until now, a lot of the AS/400's success can be attributed to satisfying pent-up demand," said Duncan Andersen, Microvax marketing manager.

Positive reaction

Reaction to the machines was generally positive. Dan Cence, manager of international systems at Polaroid Corp, said the firm is considering both DEC's new models and the high end of the AS/400 for installation in its European offices. "If DEC's price/performance numbers are true, it's an aggressive incentive to go with DEC," he said.

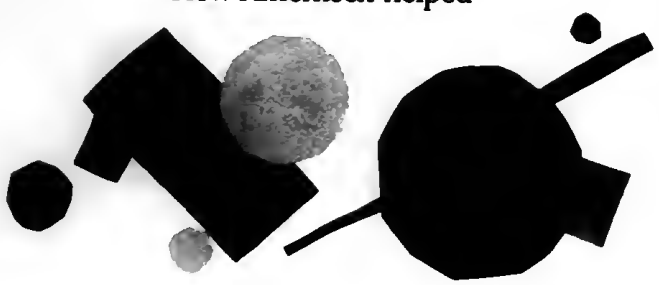
The Microvax enhancements may also be just the ticket to arouse DEC from its fiscal lull. The line has been the most popular product in DEC's 31-year history, with more than 150,000 sold since it arrived in 1983.

Those customer loyalties run deep. Richard Wolfe, systems manager at the Bonneville Power Administration in Portland, Ore., said he is eager to assess the new models, even though the scope of a sale could be limited. Wolfe said he is shifting many applications down to Vaxstations to cut the work load on his superminis and mainframes.

DEC also took on IBM by trumpeting the additions as front ends for an on-line transaction processor (OLTP) environment. "OLTP is one area where the AS/400 has thus far not set the world on fire," said Terry Shannon, director of the DEC Advisory Service at International Data Corp., a market research firm in Framingham, Mass.

But battling IBM is not the only thing worrying DEC. The firm is now No. 2 in the technical workstation market behind Sun Microsystems, Inc., which may be the next powerhouse to enter the DEC firing line. Analysts said they believe DEC will bring out a more powerful workstation sometime this summer, and DEC Chairman Ken Olsen hinted that the company is working on a powerful personal computer that runs the Unix operating system.

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Unisys low-end System/80 addition the first in five years

BY ROSEMARY HAMILTON
CW STAFF

Michael Blumenthal's 2-year-old claim of bringing together the Burroughs and Sperry computer lines took a step toward reality last week with the introduction of the System/80 Model 7E.

The entry-point midrange system, which comes from the Sperry side of the house, will be based on the company's Single Chip A Series Mainframe Processor (SCAMP) technology, which was first used earlier this year in the Micro A, a low-end extension of the A series, the former Burroughs mainframe line.

Although the heart of 7E is a SCAMP, it has been modified for the System/80 environment, which means it offers no compatibility with the A series systems. Instead, it was designed for System/80 object-code compatibility.

"The announcement says it is possible to support those architectures and that they won't have to cut off one of their legs," said George Lindamood, an analyst at Gartner Group, Inc.

With the 7E's microprocessor-on-a-chip concept, users will now have a low-end alternative — priced at $136,000 with basic peripherals and software — that is more than twice as powerful as previous low ends for approximately the same price and, when fully configured, takes up 80% less floor space.

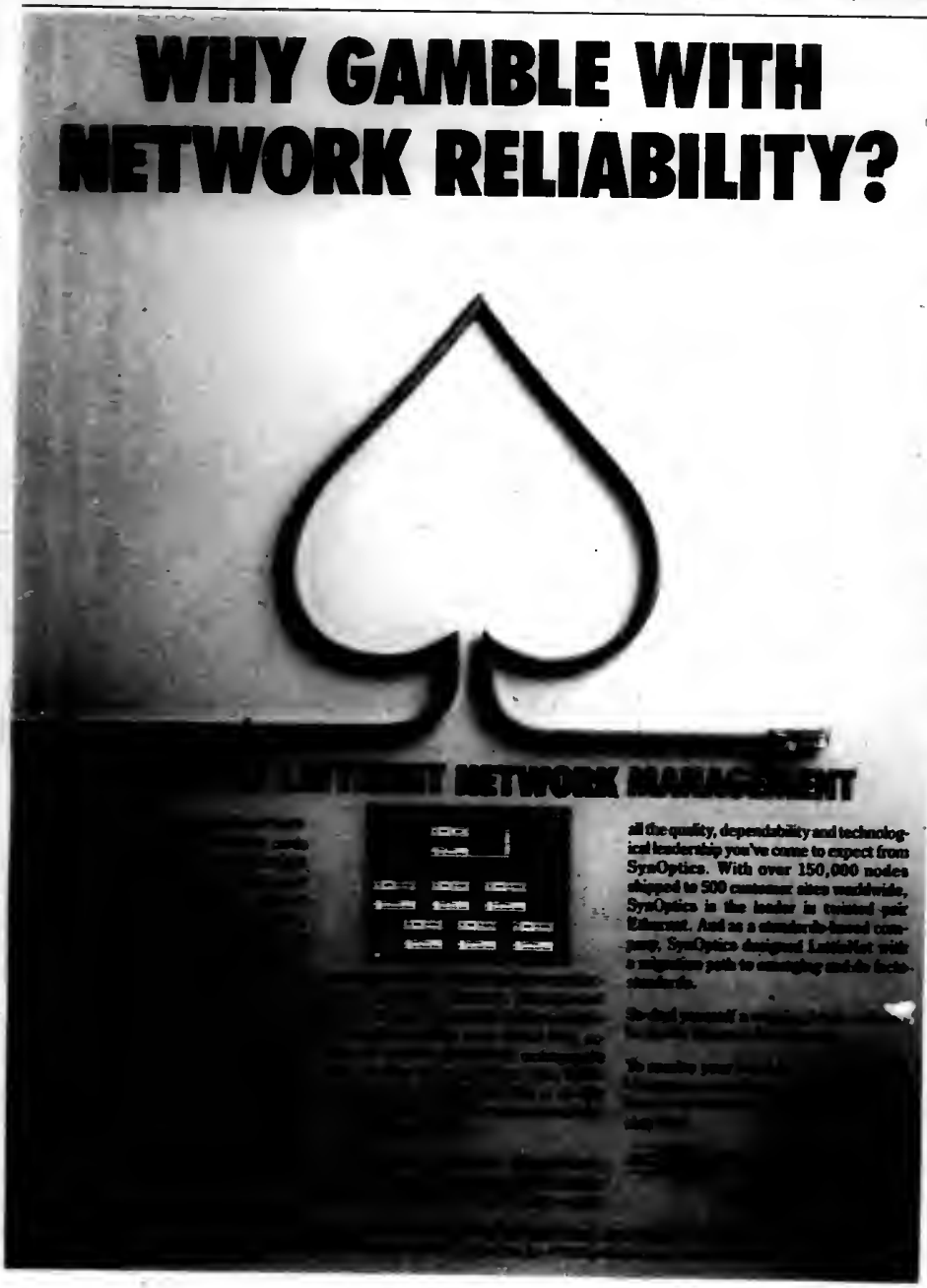
The introduction marks the first low-end System/80 addition in nearly five years, according to Larry Mullen, a Unisys product marketing manager. The older Model 4 has not been actively marketed since 1985.

William Solis, a System/80 user, said it has caught his interest. Solis, chief of information systems at the New York State Office of Business Permits and Regulatory Assistance, currently runs a System/80 Model 6. He has been planning an upgrade but said he was not satisfied with the choices the higher end System/80s offered.

The 7E, he said, would take up less room than his current system and function as a piece of office equipment. However, Solis said no decision has yet been made.

"We will evaluate it, but we'll also look at some other vendors," he said.

Unisys hopes to move beyond the System/80 base and snatch away some System/36 customers from IBM as well. The 7E runs the IBM RPG programming language.



NEC claims an eightfold leap over Cray

BY JAMES DALY
CW STAFF

BURLINGTON, Mass. — The speed limit in the supercomputer market was raised dramatically last week when NEC Corp. announced a line of supercomputers that it claims offers up to eight times the peak performance of Cray Research, Inc.'s most powerful system.

NEC officials said the SX-X series uses a sophisticated new chip technology to perform more than 20 billion floating-point operations per second (GFLOPS). Conversely, a Cray Y-MP offers up to 2 GFLOPS, while Fujitsu Ltd.'a VP2000 line will reportedly hit 4 GFLOPS when it becomes available in the fourth quarter.

The SX-X line also includes NEC's first implementation of a multiprocessor architecture. The models are available in single-, dual- and four-processor configurations, with each processor offering performance of more than 5 GFLOPS, NEC said.

For HNSX Supercomputers, Inc., the joint venture of NEC and Honeywell, Inc. that will market the machines in North America, the stakes involved in the success of the eight-model line are enormous. While NEC has only sold one supercomputer in the U.S., HNSX has not sold a single supercomputer since it was incorporated in late 1986.

A nagging problem for NEC is a lack of applications software. "It doesn't make any difference how fast it is if it doesn't have any software," said Dick Shaffer, editor of "Technologic Computer Letter" and a principal at Technologic Partners, a New York-based consulting firm.

The company claims it has solved this earlier problem by allowing the SX-X series to run AT&T's Unix operating system. "There's a whole broad base of people developing things to the Unix standards," said Samuel W. Adams, vice-president of marketing at HNSX. Additionally, the machines include an applications conversion tool that translates Fortran programs from other supercomputers to the SX-X series.

The SX-X line is scheduled for availability in the third quarter of 1990, with prices ranging from $5 million to $23 million.

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COMPUTERWORLD

Rollouts free NET from switch niche

BY ELISABETH HORWITT
CW STAFF

NEW YORK — Network Equipment Technologies, Inc. (NET) scored big in users' eyes last week with product introductions that target the next phase of their corporatewide connectivity plans.

Key NET announcements included expert systems-based network management, support of both fractional T1 and 45M bit/sec. T3 speeds, an X.25 packet switch and a remote local-area network bridge.

Several of these announcements are potentially useful to New York State's Empirenet, s digital voice/data network now under construction that will use more than 100 NET switches to connect state agencies, according to Jack Heinsohn, director of telecommunications at New York State's office of general services.

The state is looking at implementing T3 backbones and, down the road, X.25 networks as possible ways to economize on Empirenet's bandwidth expense, Heinsohn added. Several agency sites that do not have enough traffic to justify s full T1 link could use fractional T1 capabilities, Heinsohn said.

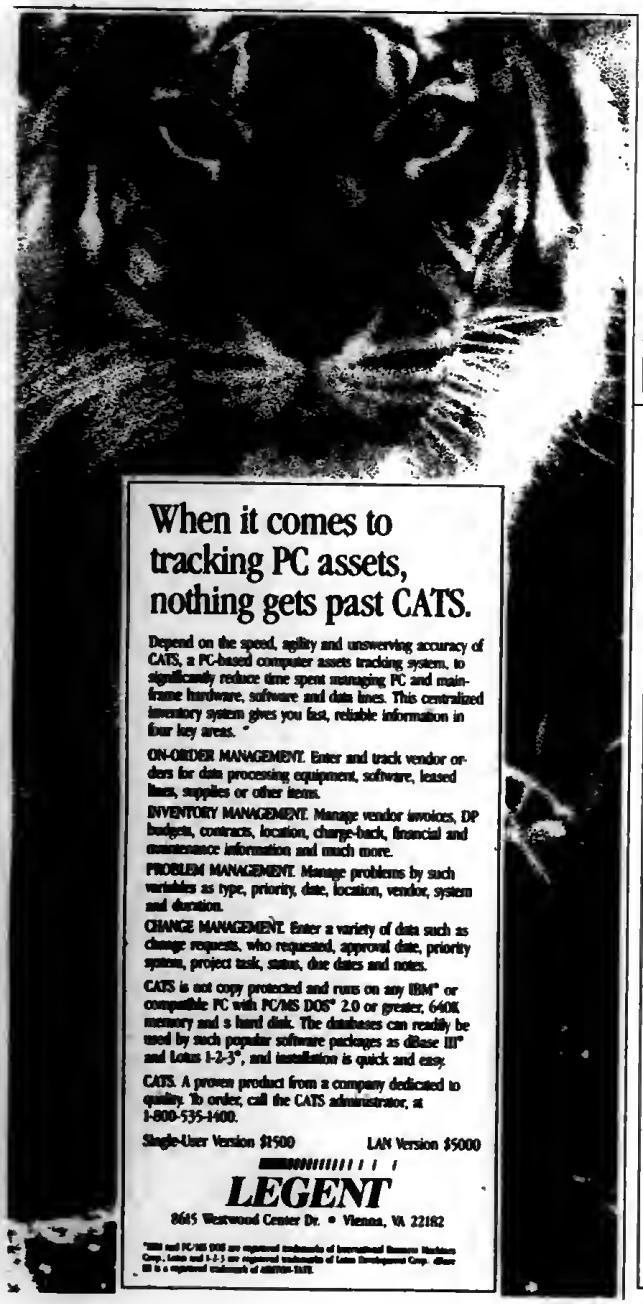
Another big NET user, Sears Technology Services, Inc., also has sites whose traffic fits into fractional T1 bandwidth. However, the Sears, Roebuck and Co. subsidiary plans to wait until major carriers start offering the service, according to Senior Vice-President Gary Weis. Of most immediate interest to Sears is NET's 45M bit/sec. backbone offering, Weis said: "We're considering the implementation of 45M bit/sec. links to connect three data centers."

NET's announcements demonstrate that the vendor "is more than just s T1 switch vendor," said Michel Guite, s vice-president at Salomon Brothers, Inc. By broadening its ability to address users' connectivity needs, the company should be better able to compete not only with other switch vendors but also with local and interexchange carriers that are using customized networks and special pricing to woo corporate customers away from private networks "back home to the public network," Guite said.

Making connections

NET announced products in three areas — transmission, network management and interconnectivity.

- IDNX/10 Integrated Access Multiplexer, unlike higher end NET products, is said to directly support 56K bit/sec. DS0 channels so that it can feed into carrier-based services, including fractional T1 services.
- IDNX/90 Transmission Resource Manager is a high-end switch designed to support 45M bit/sec. T3 transmission, including applications that require the aggregate bandwidth of several T1 links.
- Expert Fault Management Service employs artificial intelligence to perform network diagnostics and troubleshooting.
- Expert T-Span Service will enable NET to act as an authorized agent for network carriers, taking responsibility for installation and maintenance issues for customers' carrier-based network facilities.
- Series 5000 Network Management System is a software enhancement that is said to allow different NET network management workstations to communicate over a LAN.
- Lanexchange/50 Internetworking System is a bridge router that reportedly connects multiple Ethernet and Token-Ring LANs over a remote link.



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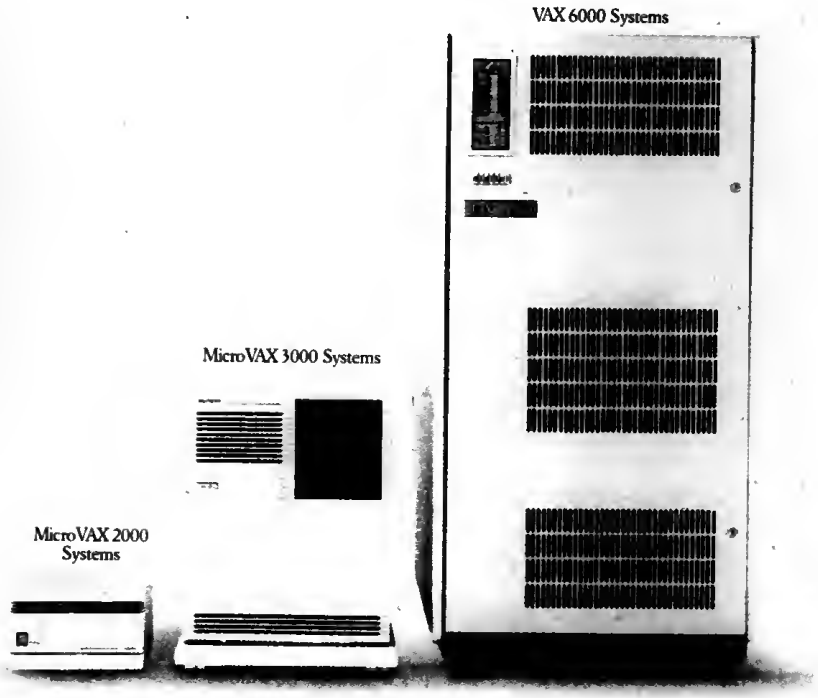
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Technology gets blood to those in need

Editor's note: This is one in a series of profiles of nominees for the Computerworld Smithsonian Awards, *recognizing individuals and organizations that have achieved outstanding progress for society through the use of information technology. The awards will be presented in a ceremony held on June 20 in New York.*

BY NELL MARGOLIS
CW STAFF



HOUSTON — "This isn't life or death, it's just business," are words you are not likely to hear very often at The Blood Center. For employees at this 15-year-old not-for-profit blood bank that serves 85 hospitals across a 16-county area, every single business transaction is potentially a matter of life or death.

Since 1985, The Blood Center has been using an automated tracking software system to help get the right blood or blood components to those in need and to guard against contaminated blood finding its way into the supply.

"Time is everything in this business," said Jeff Pereson, The Blood Center's vice-president of administrative services. Even before the specter of acquired immune deficiency syndrome and further U.S. Food and Drug Administration requirements that increased the number of tests that must be performed on donated blood before it can be released, sheer growth in demand was straining the blood bank's old-fashioned file-card-based procedures, he said.

In 1983, a team spearheaded by Pereson turned to the computer industry for help. "What we wanted to do," according to Pereson, "was develop a single computerized control and information system to integrate donor recruitment and management, lab functions, inventory management and hospital billing — our key functional areas." With the assistance of Unisys Corp. and its Mapper fourth-generation language product, he explained, that capability is precisely what they came up with.





MARK GREENBERG/AMMA LIAISON

(Above) The Blood Center's *John Lockhart (left) and Dennis Shaffer;* **(Left) Bar codes** *make blood by-products ready for use*

Today, the center's blood banking application, based on a database that contains detailed information on more than 700,000 donors, has rocketed the greater Houston area to the forefront of blood supply self-sufficiency.

Stand back

From the start, the system was a user-driven initiative, remembered Pereson, who originally comes from the financial end of the organization and has no formal technology background. "We said to our board, give us the money and get out of our way — and, in their infinite wisdom, they did," Pereson said.

The results justify the board's decision to let the users do it themselves. Between 1985, when the system went to work, and 1988, the number of whole-blood units collected by the center rose from 46,602 to 191,026, blood components produced went from 71,284 to 551,087 and the number of tests performed increased from 140,000 to 1,200,000.

In 1983, Pereson said, 637 units of blood slipped through the cracks of the manual monitoring system, became outdated and had to be discarded. In 1988, that number was reduced to only four.

Pereson awards a lion's share of the system's success to the fact that users were involved from the start, at every stage and in every aspect of the application's development and management. For example, he said, the inventory department showed the greatest amount of early resistance to going on-line.

"We cured that by selecting one of their people [Dennis Shaffer] to work side by side with the technologists," Pereson explained. "We were determined not to create a computer empire."

> "YOU CAN have a lot of doubt about machines, but if you know you can trust the people, you know you can trust the system."
>
> ROBERT TRAVIS
> BLOOD BANK OF DELAWARE

As the system has grown, he conceded, more bureaucracy has necessarily entered in. Nevertheless, users still loom large. The center's seven-man MIS department includes three programmers, two of whom "were trained from bench positions." The third, relative newcomer John Lockhart, is the sole systems programmer who set out to become one originally.

"The beauty of the system is that it's designed by blood bankers for blood bankers," said Robert Travis, assistant executive director of Blood Bank of Delaware, Inc. A for-profit subsidiary of The Blood Center, Blood Corporation of America, has marketed its application to seven facilities in the U.S., including this community blood center headquartered in Newark, Del. The turnkey package includes Unisys hardware and software.

With 47,000 units of blood collected each year, nearly double that number of blood products processed and six to eight tests to perform on each unit, the Delaware blood bank needed automation, Travis explained. Even so, he said, "We were a little nervous and slow at first about jumping into this."

The Blood Center crew's integrity, Travis said, ultimately drew his firm into the fold. "You can have a lot of doubt about machines, but if you know you can trust the people, you know you can trust the system. If [Blood Center President William] Teague retires, you can still look at who's over there and know they're going to be a class operation for the next 40 years."

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EDITORIAL

A puzzling game

IT MAY BE like the children's games "Follow the Leader" or "Simon Says." CEOs and other top U.S. business leaders claim to embrace information technology as critical to their companies, but there is more than a bit of platitude-parroting going on.

Computerworld's exclusive telephone survey of Fortune 1,000 chief executive officers and senior executives (see story page 1) makes it clear that business leaders are still confounded by unmet expectations and vague perspectives on the impact of information systems in their firms.

For example, while 74% of those polled claimed that the value of IS is quantifiable, the majority were unable to explain precisely how that measurement was done. "It comes down to a gut reaction," said one CEO. "I said it can be done, not that I can do it," added another.

Also, even though 85% agree that IS holds the key to competitive advantage for their companies in the 1990s, 63% of those said that they were not getting the most for their information systems investment.

Surveys, of course, produce indicators of thoughts and trends across a broad spectrum. Generalizations can be dangerous and misleading. Indeed, the CEOs contacted for this survey represented a cross section of personalities and attitudes. The mix includes both the enlightened hands-on executive, who not only understands the value of IS to his company but claims a visible leadership role in technology, and the dinosaur, who continues to view IS as the data processing utility hidden away in the back room.

But the numbers cannot be ignored, and the picture they paint is of a shifting generation of business leaders who realize that IS is invaluable but are frustrated by the inability to measure its payoff. Top executives have been inundated by the consultants and the business press for more than a decade about the crucial importance of IS, and now they are trumpeting its praise.

These same leaders, however, keep their distance from IS and are, in many cases, unwilling to personally bridge the gap. They look to others to tell them that all is well within the IS sector and claim that they are too old or too busy to get personally involved in things technical.

While top executives sing hosannas for their IS functions and IS leaders, they make it clear that IS is not a path to the CEO suite. A wide majority of those polled said there is little likelihood that an IS alumnus would ever run their company. This was a view shared by enlightened and unenlightened CEOs alike.

That's hardly surprising, considering how little attention CEOs traditionally have paid to technology. But it is indicative of the chasm that continues to exist between top business leadership and IS, a chasm that must be closed.

It also indicates that the ball is now in IS' court. IS managers who aspire to corporate leadership clearly need to show both a savvy business sense and an understanding of the firm's direction. Otherwise, the key to the executive suite will remain a generation away.



LETTERS TO THE EDITOR

Unix explained

I have three problems with your editorial "Cut it out" [CW, March 3]. First, I deny taking steps to prevent Unix System groups from linking up. At the Uniforum trade show in San Francisco a few weeks ago, I called for an end to the so-called Unix System wars and said I would talk to anyone in the industry about working together in the interest of users. Informal discussions between AT&T's Unix Software Operation and the Open System Foundation are, in fact, already under way.

Second, though it may seem to you that Unix is mired in politics, the product itself is moving in the market at an incredible pace. In 1988, over 400,000 Unix computer systems were shipped worldwide.

The Unix System V/386 Release 3.2 for Intel Corp.'s 80386 architecture [CW, Aug. 29] lets end users run a multitude of 32-bit applications already written for Unix System V and Xenix on their 386-based machines. At January's Uniforum, AT&T announced a secure version of Unix System V and source code for the Open Look graphical user interface. Unix System V Release 4.0 will be generally available this fall.

Finally, I do not understand your despair about the availability of an operating system that takes advantage of Intel's 30486 processor. One of Unix's chief advantages is that it fully exploits the power of high-speed chips like t' e 486, and only Unix can currently exploit the power of the growing variety of RISC processors.

In addition, we are working with Intel to develop a Unix System V Release 4.0 Application Binary Interface (ABI) specification that will give 486 customers "shrink-wrapped" access to 32-bit applications.

Robert M. Kavner
President
AT&T Data Systems Group
Morristown, N.J.

Paying for defects

Your recent story on the increased maintenance fees being charged by Computer Associates [CW, March 27] was a fine example of journalism, but it missed the larger implication.

What exactly is being purchased with a maintenance contract? Generally, users are buying fixes to the products they have already purchased. This is quite different from, say, an extended warranty in the automobile industry. In a car, a part may wear out and need replacement. In software, the defects are typically there right from the start.

What does this mean? Software producers create products with defects, sell these defects, and then sell fixes to the defects. Where is the incentive to produce quality code? There doesn't appear to be any business justification for delivering defect-free products to the users.

This condition will continue to exist until one of three things happens: First, the users as a group echo the line from *Network:* "I'm mad as hell and I'm not going to take it anymore." This does not seem too likely. Today's users seem to expect defects in software.

Second, legislatures could step in and require the software products to perform as advertised. Again, not likely at this time. Lawmaking bodies are busy worrying about things their constituents worry about.

Third, an offshore software industry could produce quality products. What would happen then? (Hint: consider the U.S. consumer electronics industry.)

Clearly, there is business justification for producing quality software. What it takes is the ability to see beyond the bottom line for the current quarter.

Shel Prince
Manager
Validation Technology
Tiburn Systems, Inc.
San Jose, Calif.

286 half-life

The single most important part of a personal computer purchasing decision made today is the processor chip. An Intel Corp. 80286-based PS/2 from IBM with the Micro Channel Architecture bus does not have half the useful life ahead of it as any Taiwan-made Intel 80386-based machine, period.

IBM marketeers use the MCA to distract potential buyers from the fact that the processor in the box is more important than the peripheral bus by at least an order of magnitude.

If the decision is an 80286 IBM PS/2 Model 50Z vs. any 80386-based computer for the same dollars, then the decision is easy. The 80286 has no future, MCA or no MCA.

Don Merz
Administrator
Blue Cross of Western Pa.
Pittsburgh

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.*

Staff increase not the answer

Information centers must alter service strategy to combat work overload

NAOMI KARTEN



Managing the overwhelming demand for support is one of the biggest challenges that information centers (IC) face. If anything, the situation is becoming more difficult. Rather than experiencing a slowdown in demand as user proficiency grows, ICs are now busier than ever.

Because of the increase in their own sophistication, users' problems are more difficult to resolve. Thanks to networking and do-everything software, the technology is becoming harder to fathom even as it is becoming easier to use. And because, as IC managers often claim, some users now know just enough to be dangerous, many centers are kept busy undoing what should not have been done to start with.

As a result, many ICs are understaffed and overworked. "If only we had more staff" is their common refrain. What they are often looking for is a can't-fail method of persuading their management to increase their staff size. That sounds like an obvious solution.

Karten is president of Karten Associates in Randolph, Mass., and editor of the monthly newsletter "Managing End-User Computing."

Unfortunately, more staff does not necessarily solve the problem. Sure, it helps the IC provide more services to more users. Add another staff member or two or three and chunks of the workload can be made theirs.

But it's only a matter of time before the workload increases so that it is as far out of proportion to the staff size as it was before. With each new staff member, the internal workings of the center become inevitably more complex. An IC manager with a staff of two observed that his peers at other companies had more problems the bigger they got, while his IC remained small and in control.

One IC initially supported 100 users with five staff members. Three years later, it was up to 1,200 users and seven staff members. Was the IC overstaffed initially? No. Did it become understaffed subsequently? No. It started with exactly what it needed to effectively support inexperienced users. As end-user computing grew, it modified its service strategies to support a larger user base.

That's the crux of the issue — a change in service strategies. There's no question that some ICs are woefully understaffed and overburdened. Something is clearly wrong when an invitation to join the IC is essentially a one-way ticket to Burnout City.

At the other extreme, large is not necessarily bad. Any IC can provide more services with more staff. But when the demand remains as strong as ever, even at the upper limits of staff size, it's clear that the issue is not the number of staff members but what the IC does with those people.



BOB DAHM

As the saying goes, if you always do what you've always done, you'll always get what you've always gotten. ICs that continue with the same service strategies are likely to continue experiencing a never-ending demand for their services, even if staff size grows.

Therefore, sheer survival suggests that ICs must attempt to reduce the demand, not meet it head-on. They must seek ways to expand the scope of what they can accomplish with the current staff size. This means doing such things as the following:

- Establishing agreements that specify what services the IC will provide under what conditions and what users can do to maximize the effectiveness of these services. Users who understand the levels of responsiveness they can reasonably expect from the IC tend to respect these levels. They take more responsibility for their computing and learn to do more for themselves.
- Providing more in-depth, business-driven support. Services provided on a first-come, first-served basis solve symptoms without solving problems or addressing needs. Working closely with departments or work groups enables ICs to help users with problems that have identifiable benefits. In the process, users learn much more about how to apply computer technology to business problems than they can through a "Help!" phone call to the hot line.
- Educating corporate management about the risks and realities of computing. The only way end-user computing can ultimately succeed is if general managers take responsibility for the computing being done by their subordinates.
- Establishing departmental gurus. This effort should go beyond the casual approach, whereby one or two users in a department become self-proclaimed experts and local heroes. End-user computing has become too important to be treated as a fly-by-night operation. What is needed is the formal selection of departmental representatives who will receive intensive IC guidance and serve as the first line of support for that department.

In reality, a staff decrease has proved most valuable to some ICs. Losing a few staff members without a proportional reduction in workload is a powerful incentive to come up with better ways of getting the job done. Sometimes, less can turn into a whole lot more.

In corporate PC charge, chief execs lead by example

AMY D. WOHL



Some chief executive officers now use personal computers at least occasionally. But more do not.

Some CEOs abstain passively because of a lack of knowledge, a lack of interest or a lack of enthusiastic colleagues urging them on.

Others abstain more actively, often expressing negative feelings about the value of computers to their own jobs and disdain for personal computing generally.

It's 1989. Information and particularly its availability have become an essential part of corporate strategy. We need a CEO alert to grab the attention of the computer-reluctant CEO, an urgent message about the vulnerability accompanying such ignorance. But the word better not go via electronic mail, because these computer-shy CEOs aren't reading any.

Wohl is president of Wohl Associates in Bala Cynwyd, Pa., and editor of "The Wohl Report on End-User Computing" newsletter.

Corporate classes

The executives who have discovered that using a computer is personally productive tend to fall into one of two classes: tinkerers, who enjoy learning and eagerly use nearly any electronic gadget, and resource-poor businessmen who find that their own computer expertise is an important adjunct to available staff in finding information and getting work done.

In large companies, the PC on your desk is not always the best way to get work done. At that level, a computer's competition is not always another computer. Often, it's the availability of competent staff in nearly any quantity at nearly any time.

This peculiar situation has a simple resolution: CEOs will use computers personally — probably PCs — when the value of the information available through their direct access is in suitable proportion to the difficulty involved in obtaining it.

When there is lots of difficulty, most information becomes worth waiting for someone to bring it to you. When there is less difficulty, the CEO might sometimes be tempted to be more self-sufficient. Five minutes of learning in order to save many hours of waiting sounds worthwhile. Furthermore, just around the corner lurk the "no learning needed" executive information systems.

But such systems come at a high hidden cost. Someone has to play the tailor, stitching together all the diverse information sources a CEO might require into a seamless whole.

Today, executive information systems can require the costly services of many highly skilled technicians. Tomorrow that cost could become acceptable, thanks to new development and integration tools and standards for access such as SQL.

Then we will learn something interesting: Executive information systems may not be just for executives. Lowering the cost of admission makes information more accessible to everyone.

But the issue of making systems valuable or accessible enough to seduce CEOs to use them isn't the whole story. Executives need to learn two other perhaps more important facts.

The first is that nothing a CEO does occurs in a vacuum. CEOs are influencers. Using the system is often important to larger organizational goals. Subordinates are sure to find out if the CEO scorns the system and nearly as sure to decide that computing cannot be very important.

This tendency is particularly prevalent among nontechnical senior managers who will take their technology cues from the boss. Sometimes, a reluctant organization can be turned around technologically just by selling the CEO on the importance of leading by visibly using the system.

Competitive edge

The second point is that a major part of the competitive advantage of your company may lie in the information you have and how you use it. Current businesses will succeed or fail depending on how quickly they rise to this emerging business opportunity.

The computer-knowledgeable CEO is a big step ahead of his computer-reluctant peers. In addition to increasing his own productivity, be can understand information-related decisions and make assessments and add his own suggestions rather than be limited to the technological recommendations of his specialists. He can also combine his mature business expertise and deep knowledge of his own business with information about the use of information and information technology. It is from this combination that come the big forward leaps and the explosions of unpredictable intuition.

The successful CEO of the '90s will make it his business to seek out information as an important element in the business strategy, and his personal familiarity with the whys and wherefores of technology will be critical.

There is no better way to understand the amazing usefulness of the right information at the right time than to find that information yourself.

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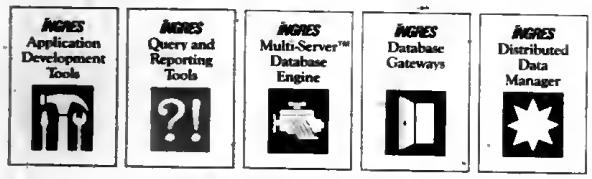
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CW

SOFT TALK

Jean S. Bozman

Unix all right at IBM sites



The IBM loyalists in the end-user and consultant communities laughed at Unix's prospects in the early 1980s. "It's too scientific," they said. "It's not secure enough. There aren't enough commercial applications to make it fly."

Since then, a lot has changed. Not only have many major objections to Unix been addressed, but real improvements have also been made in response to commercial needs in the areas of security and accountability. As a result, Unix is finally making inroads into IBM mainframe shops, a virtual impossibility just five years ago.

Recent visits to major IBM customer sites, including McDonald's, Bank of America, Pacific Bell and DHL Worldwide Express, have shown how well Unix systems can be integrated into what otherwise could be called true IBM shops. DHL, for one, is rolling out a global Unix network that will, in time, replace 150 IBM System/36s.

The attraction of Unix in a global arena, says William Pigott, DHL's information systems vice-president in the U.S.,

Continued on page 26

U.S. vs. Japan in super faceoff

ANALYSIS

BY JAMES DALY
CW STAFF

The billion-dollar supercomputer business is hip-deep in a bitter struggle between the U.S. and Japan, with both sides pitting technological advances against national pride. If the situation worsens, some observers say politics may soon have far more to do with a supercomputer purchase than performance.

NEC Corp.'s introduction of a high-powered supercomputer last week should add fresh fuel to the fire. NEC's SX-X promises up to eight times the power of the most powerful model built by Cray Research, Inc., which has overshadowed the industry for a decade.

The high-tech hot potato also has all the markings of developing into a lengthy and volatile feud. Some Japanese firms have tried to secure a U.S. beachhead by drastically cutting prices, eliciting bitter memories of Japanese vendors' earlier habit of slashing semiconductor prices and "dumping" them onto the U.S. market. U.S. vendors complain that Japan has restricted access to its market.

The federal government may be the worst offender in encouraging an anti-Japan bias, having done more to aggravate than alleviate the trade friction, according to some. The U.S. Department of Defense, for example, forbids the purchase of foreign supercomputers, while the U.S. Department of Commerce keeps an eye peeled for those whose plans might include overseas purchases.

MIT was one such victim of the Commerce Department's steely gaze. In late 1987, the school ended talks with Fujitsu Ltd. and NEC after then-Secretary of Commerce Bruce Smart

Continued on page 30

Inside

- Chrysler Financial gets IS makeover. Page 25.
- GAO says Ada is no help. Page 25.
- CASE tool boosts DEC's fortunes in development arena. Page 25.

Disaster recovery to hit big time, study says

BY JAMES DALY
CW STAFF

Fear sells, and one need look no further than the disaster recovery business to see vendors taking anxiety to the bank.

As users increasingly view contingency planning as a competitive necessity, a resultant financial windfall will send annual revenue in the disaster recovery services market over the $1 billion mark by 1995, according to a recent study by The Ledgeway Group research firm.

The trend toward contingency planning — which the report said has been spurred by government regulations requiring some firms with federal contracts to have such plans — will cause the market to grow 20% annually through the early 1990s, said the Lexington, Mass.-based company. At least two firms — Comdisco Disaster Recovery Services, Inc. and Sungard Recovery Services, Inc. — expect at least 40% annual growth.

As the market grows, it will seep into many industries. Whereas the financial services industry was once the pacesetter, manufacturing is now the fastest growing segment, accounting for 30% of disaster recovery services sales.

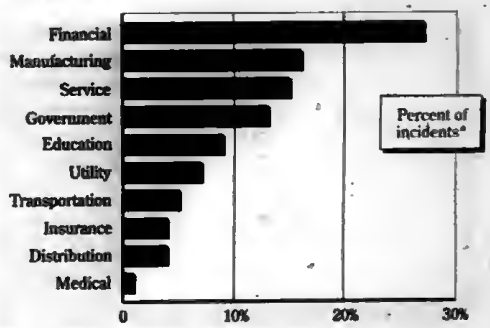
The government, service industries and education field are also significant users, the report added.

The study sliced the field into classical recovery services such as hot sites, contingency planning and consultancy services and packaged solutions such as personal computer-based software planning systems.

While alternate backup sites are expected to remain the dominant force in terms of sheer revenue, a great deal of opportunity exists for vendors of PC-based planning services because companies are often willing to commit internal resources to work on planning, the report said.

Where disaster strikes

The financial services industry has traditionally been the most vulnerable to computer outages



* Based on 1,000 disasters tracked over a two-year period

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These men started a revolution on campus.



Recently, an information management revolution occurred at the University of Wisconsin–Stevens Point. Dan Goulet from the University and Jim Leonhart of AT&T—campus radicals of a different kind—explain how they were able to realize a bold and complex vision

FEBRUARY 22, 1989

Jim: I remember the first day we met. You had been around the block a few times, but weren't getting the answers you needed.

Dan: We wanted to create a unique education environment: a free-flowing on-line computer campus. We had a vision, and we were looking for someone to help build it.

Jim: A distributed networked computing solution, that's what we'd call it now: a way to process, move and manage information effectively, throughout a widespread organization.

Dan: We talked to many computer vendors before you. We got tired of describing what we needed, so we drew it. That graphic was about 13 feet long.

Jim: More like twenty. The chart showed every information resource on campus linked together, accessible to students, faculty, and administration. It became the wallpaper in my office for fifteen months.

Dan: It was like a blueprint for a data superbighway.

Jim: We put our ISN wide-area network at the center—like an interchange—and built fiber and twisted-pair data lanes to applications running on AT&T 3B2s, DEC, UNISYS and other hosts located in all the departments. We put on- and off-ramps in strategic locations: StarLAN networks that gave access to the highway from workstations.

Dan: We designed everything from the user perspective. The more technically remarkable the system became, the harder we worked to make it approachable.

Jim: Easy for novices, powerful enough for programming students.

Dan: We developed a menu-driven user interface that is consistent and clear. Students and faculty can select applications like checking spelling, transmitting course grades, even browsing through the on-line card catalog of 1.5 million books at the University of Wisconsin–Madison. We wanted desktop power and access, but we wanted to process information where it made the most sense.

Jim: Thinking back, we realized early that the complexity of your vision precluded a single-system focus. You needed open systems.

Dan: You were really the only ones that understood this point. Open systems allow us to use off-the-shelf components; vendors have to bid against each other to get our business. Open systems are the secret.

Jim: It's mind-boggling how much computer power is out there. We wanted to harness it all, yet give a piece to every individual.

Dan: A truly distributed network, one we don't think we'll ever outgrow. We've added 300 WGS workstations in the last five months.

Jim: Dan, where in the world is that wallpaper today?

Dan: We had it bronzed. Today, so many colleges and businesses really need a similar solution. That's probably why we've had so many visits from them lately.

Jim: Little did we know back then, when we first met.

Dan: Oh, something tells me you had a hint.

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Stevens Point has been designated a Center of Excellence for Distributed Academic Computing by the Board of Regents for the entire University of Wisconsin system. The majority of the 9000 students on campus regularly use the network for coursework and homework. Faculty have integrated computing into 41% of their coursework.

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Chrysler Financial steers Unix course

ON SITE

BY ELLIS BOOKER
CW STAFF

TROY, Mich. — Chrysler Financial Corp. has changed its IS balance sheet dramatically over the past 12 months. A year ago, the $259 million Chrysler Corp. subsidiary had about 250 terminals linked to its primary source of computing horsepower, an IBM 4381.

Today, it claims about 3,000 terminals, and the 4381 has been retired in favor of an IBM 3090 Model 400S that sits in a spanking new computer center at headquarters here.

But the biggest change has been a move to distributed Unix-based processing with the deployment of 124 AT&T 3B2/600 minicomputers at the branch offices of Chrysler Credit, Chrysler Financial's largest subsidiary. Installed last year, the minis are part of the Branch Electronic Support Terminal (BEST) network, which links more than 100 Chrysler Credit branches in the U.S and Canada to the 3090 and gives each remote office a 3B2/600 running AT&T's Unix System V.

Although Unix was not a prerequisite in early 1987 when Chrysler Financial began looking for an alternative to IBM Series/1 minicomputers at the branches, five of the eight proposals it received from vendors were for Unix implementations, according to Yvon B. Colson, vice-president of MIS at Chrysler Financial.

"The Unix proposals were two to three times cheaper than the proprietary proposals, and all the Unix proposals were in the same [cost] range," Colson said.

AS/400 too late

When asked why his IBM Systems Network Architecture shop elected to use AT&T hardware and Unix rather than IBM's Application System/400 in the branches, Colson explained that the AS/400 was announced by IBM after the June 1, 1987, deadline for submitting proposals. AT&T beat out the other vendors that were invited to bid — IBM, Digital Equipment Corp., Tandem Computers, Inc., Unisys Corp., NCR Corp. and Motorola, Inc. — and was awarded the multimillion dollar contract in October 1987.

Between March and November last year, it placed 124 3B2/600s as well as 2,600 AT&T 615 multitasking terminals and associated modems and multiplexers in 115 Chrysler Credit branches.



PETER YATES/PICTURE GROUP

Chrysler's Colson *presides over Unix setup*

These branches are the points of contact for wholesale, retail and lease financing for Chrysler Motors dealers and their customers. Last year, the credit operation supplied services to 3,500 wholesale dealers and 2.4 million retail customers for a whopping $20 billion in gross receivables. Chrysler Financial is itself ranked as the fourth largest nonbank finance company in North America.

Yet prior to the installation of BEST, Chrysler Credit branch managers routinely computed payoff quotations on retail contracts by hand. Now, in addition to automating this process, managers can access the 3090, scan account histories and wholesale inventories of cars in real time and exchange electronic mail with the home office. By June, these managers will be able to consult an on-line expert system to more quickly determine the creditworthiness of potential car buyers (see story page 28).

The 3B2s in the branches, which typically have staffs of 10 to 50, are connected to the Troy computer center using AT&T Systems Network Architecture 3270, RJE Emulation and LU6.2 packages. Multiplexed connections are established using 9.2K bit/sec. lines from MCI Communications Corp. and AT&T.

However, this setup will inevitably change, Colson predicted, noting that Chrysler Motors

Continued on page 28

DEC tool aids forms operations

BY AMY CORTESE
CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. recently sought to strengthen its hand in transaction processing and network applications development by unveiling a computer-aided software engineering tool for those arenas.

Decforms is a software tool that helps developers create forms-based applications. It replaces two older tools offered by DEC — the VAX Form Management System (FMS) and the VAX Terminal Data Management System (TDMS) — and is being heralded by DEC as its single forms solution for the 1990s.

However, Decforms is not available for use with all DEC VAXs and systems software. It requires DEC's VMS Release 5 and higher and does not support some older DEC hardware, including the VAX-11/725, 11/730, Microvax I, Vaxstation I and Vaxstation 8000. The software does support all VT series terminals and terminal emulators running on personal computers and workstations, but it does not yet work with the recently announced Decwindows.

Decforms, a set of development tools and runtime services, is intended for development of any application that requires a forms-based screen presentation to end users. The older FMS was unsuited for networked environments, while TDMS was more network-oriented but lacked the control of FMS, according to DEC.

Decforms incorporates all of those features and can facilitate development of transaction-oriented forms applications, according to Dan Frantz, development manager of the product.

Added features

New features include a forms development environment for creating forms, a panel editor that functions in an interactive what-you-see-in-what-you-get fashion and an independent form description language translator.

The program is based on the proposed ANSI/International Standards Organization standard for a form interface management system.

Decforms is slated for May availability, and its price will range from $1,285 to $5,655, depending on processor size and whether a runtime or full development license is purchased. Discounts of 50% are available for customers now using VAX FMS or TDMS.

GAO audit can't justify Ada adoption

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Nine years after the Pentagon adopted the Ada programming language, there still is no convincing, empirical evidence that it is helping to control the military's runaway software development and maintenance costs, a government audit said last month.

The problem, according to the U.S. General Accounting Office (GAO), is that the U.S. Department of Defense (DOD) has no way of documenting the costs or benefits of its Ada software initiative. Ironically, the DOD estimates the costs of using Ada only when it is justifying the use of another language.

The DOD does not have a complete inventory of Ada projects and cannot untangle Ada-specific costs from other system costs. Furthermore, there is no DOD effort to assess the long-term benefits or cost savings of Ada, the GAO reported.

Babel buster

Faced with software development costs of $3 billion a year and 300 different programming languages or versions of languages, the DOD developed and adopted Ada as a portable and reliable language capable of being easily maintained and even reused.

The GAO's review of 100 Ada projects determined that 77 involve the development of computer applications for operational systems. "While the total estimated cost of these projects exceeded $74 billion, we were unable to determine the Ada-specific costs," the report stated.

In a written response, the DOD officials concurred with the report's recommendation to develop performance data for use in assessing whether Ada is achieving its goals.

Uphill battle

However, George P. Millburn, the DOD's deputy director of defense research and engineering, said the task of identifying the costs of using a particular language will be very difficult and has never been done for any high-order programming language.

Millburn noted that many of Ada's benefits show up later in the software's life cycle and are associated with the fact that Ada is not just a programming language but a vehicle for new software engineering methods.

He said it is unrealistic to expect performance data anytime soon, since many large DOD systems have a life cycle of 20 years or more.

The GAO critique also discussed several technical issues that have hampered the implementation of Ada in the past:

- The availability of Ada compilers is no longer a problem for most defense department applications, although the U.S. Navy has to develop its own compiler to run on its custom-built computers.
- DOD validation of compilers ensures that they conform to the language standard, but it does not measure their speed or efficiency. However, the DOD is developing a set of tests to help managers compare the "production quality" of different Ada compilers.
- Ada is being used successfully in some real-time applications, but it does not work well in "critical real-time" jobs that require very fast or tightly controlled processing. For example, Ada code may require too much time to switch from running one task to another.

Some experts said they believe that improvements in efficiency and timing control will necessitate changes to the Ada language standard, while others believe that the improvements will result from enhanced compilers and runtime executives, the GAO reported. In either case, the experts interviewed by the GAO agreed that assembly code must now be used for certain small, critical portions of the program.

Looking for link

A consensus is lacking on a standard approach for linking Ada programs with database management systems that employ the SQL standard. There are four proposed Ada/SQL interfaces, but some of them would require changes to either the Ada or SQL standards.

In general, Millburn said, the GAO report's facts are correct but, in some instances, the report cast them in an "unduly negative light."

"The few technical difficulties that have been identified with the use of Ada are primarily associated with specific implementations of the language rather than with the language itself," Millburn said in his written response.

DG sets new low-end on tabletop

BY JAMES DALY
CW STAFF

WESTBORO, Mass. — Data General Corp. slid a low-cost model under its line of Eclipse computers recently, reducing the cost of entry into its midrange by nearly 20%.

DG officials tacitly acknowledged that the performance of the table-top Eclipse MV/1000 DC system promises to deliver a death blow to its existing low-end models, the MV/1400 DC and MV/2000 DC.

While all three machines are capable of processing one million instructions per second, the MV/1000 DC will sell for $8,150. In comparison, the MV/1400 DC starts at approximately $10,000, while the MV/2000 DC begins at $19,000.

"The MV/1000 and MV/2500 are going to be the primary products of our low-end integrated systems," product manager James Hintlian said.

Departmental tool

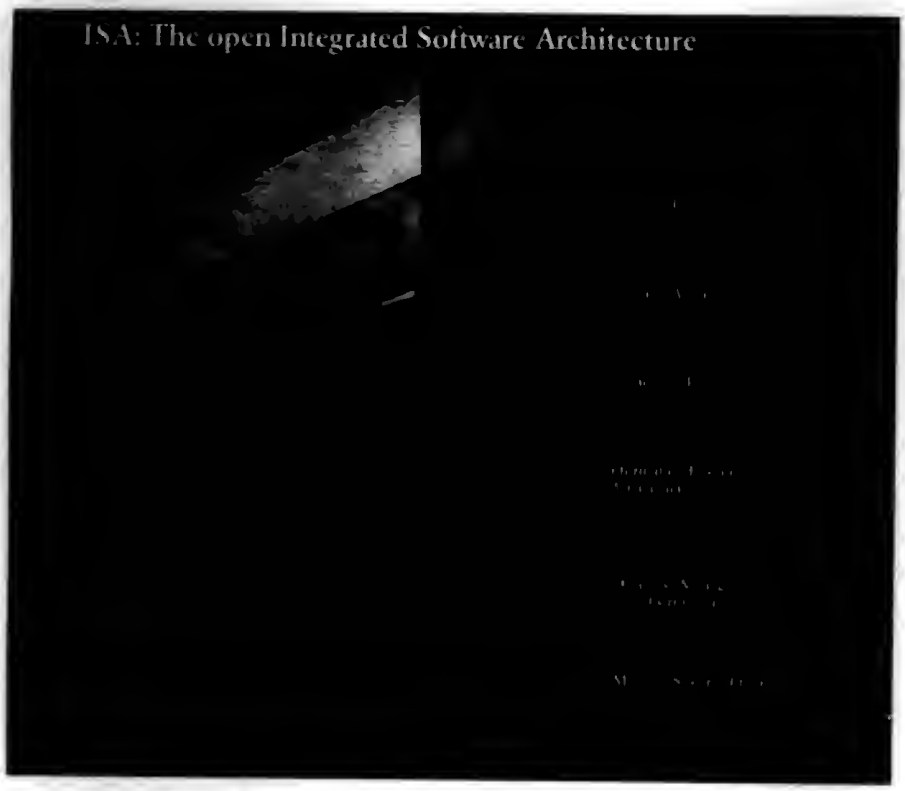
DG officials added that they will position the 32-bit MV/1000 DC as a tool for small departments and businesses as well as a building block for OEMs and value-added resellers.

The company also said it will provide an upgrade path for users of its 16-bit Desktop Generation products.

The MV/1000 DC also features a CMOS gate array, floating-point unit and 4M bytes of main memory.

The base price includes a 38M-byte Winchester disk and a 737K-byte disk. The machine is available 30 days after receipt of an order.

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Bozman

FROM PAGE 21

is its portability to a variety of computer platforms. In Europe, that platform might be a Bull midrange machine; in Africa and South America, an NCR Tower; and in the U.S., probably a Pyramid Technology transaction processor. The end user's machine would be chosen to suit his needs — and tastes. Yet, at three DHL computer rooms in California, Texas and Virginia, the primary processors will continue to be IBM and Amdahl mainframes.

McDonald's took the same approach several years ago, developing a Unix system for worldwide use and leaving its IBM, Amdahl and Tandem machines at home in Oak Brook, Ill. The Unix system proved so adaptable for regional use, though, that it is being rolled out across the U.S. for installation in McDonald's restaurants nationwide.

Pacific Bell is developing a plan for the year 2000 that is built on industry standards and Unix. MIS Vice-President Jack Hancock [CW, March 20] is relying on Unix's flexibility to ensure compatibility between interchangeable hardware platforms. But Pacific Bell has more than 50 mainframes — most from IBM and Amdahl — to crank out telephone bills and to keep accounts straight.

Even Bank of America, securely anchored by IBM mainframes, is keeping its options open with Unix. But the presence of Unix won't spell the end of IBM's OS/2. Instead, it will complement OS/2 applications with others written in Unix, Simmons says.

What does it all mean? These inroads reflect the fact that IBM has recognized the value of an operating system that is dedicated to multitasking, portability and distributed processing. After years of resisting Unix, hobbling it in first-run versions of IX/370 and a lot of foot-dragging, IBM's message at this year's Uniforum was this: It's OK to integrate AIX and Unix into your long-range plans, MIS managers, because we're in the Unix game for the long haul, too.

Bozman is *Computerworld's* West Coast bureau chief.

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Feds unfurl new dictionary standard

BY MITCH BETTS
CW STAFF

GAITHERSBURG, Md. — The U.S. government has adopted the American National Standards Institute's Information Resource Dictionary System (IRDS) as its standard for data dictionaries used with database management systems, the government announced earlier this month.

"The federal government is probably the first user organization that has gone on record as adopting the ANSI standard," said Alan H. Goldfine, a computer scientist at the National Institute of Standards and Technology (NIST).

The IRDS, intended to serve as the central repository of information about an organization's data, supports such tasks as data element standardization and software maintenance. The standard applies to a stand-alone data dictionary system that is outside the DBMS but not a data dictionary embedded in a vendor's DBMS, Goldfine stressed.

The federal standard will be effective Sept. 25, but there is an 18-month grace period to allow vendors to produce dictionary systems that meet the standard.

Goldfine said the transition period is necessary because, at the moment, there are no commercially available implementations of the IRDS standard. "Our feeling is, from our discussions with vendors, that from the end of this year to the middle of next year you will see several IRDS products on the market," he said.

"The purpose of the standard is to promote portability of valuable information resources within and among federal agencies," declared the April 5 announcement by the NIST, part of the U.S. Department of Commerce.

The IRDS standard enhances the portability of data because it requires standard definitions for agency data. In addition, Goldfine said, the IRDS includes standardized user interfaces for queries and report generation, allowing users to employ the same commands for any vendor's IRDS.

A suite of automated validation tests for products using the IRDS standard is being developed, Goldfine said. The goal is to have the test suite finished in two years, at the end of the transition period.

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PILOT EXECUTIVE SOFTWARE

Chrysler

CONTINUED FROM PAGE 25

has stated its intention to use very small-sperture terminal satellite networks.

The 3B2/600, with its concurrent user capacity of 25 to 64, is the right size for now, according to Colson, although he noted that 15 to 20 branches with particularly heavy local processing and financial simulation requirements will probably upgrade to 3B2/1000s by the end of the year.

The IBM Series/1, which the 3B2/600s displaced, had interacted with the host in a batch mode. Not surprisingly, when real-time, interactive processing became available with the 3B2s, IBM CICS traffic shot up. According to Colson, CICS transactions increased in less than six months from about 20,000 to 25,000 per day to 600,000 per day. This increased volume was part of the reason the IBM 4381 was replaced with a 3090 Model 200, which itself was replaced by the Model 400S in January.

Ace card

The branch application is neither the only duty for Yvon Colson's 146-member IS staff nor the only process on the mainframe. The 3090 is also supporting IBM's DB2, Information Builders, Inc.'s Focus, SQL and an executive information system trial program that several Chrysler Credit executives have been using for two months.

But the application that stirs the most excitement at Chrysler Credit is the automated credit evaluation system (ACE).

Now in the final stages of production testing, ACE was developed by a Chrysler Credit team using Aion Corp. expert system tools in cooperation with Arthur Andersen Consulting. The credit-scoring portion of the application was developed by American Management Systems, Inc.

In operation, a customer's financial information is entered at the branch and then submitted to the Troy, Mich., host, which in turn queries one or more credit bureaus. This information is combined with the bureau data and data from Chrysler's own credit history archives. Usually within four to five minutes, a completed file is returned to the branch office along with a recommendation to reject or accept.

ELLIS BOOKER

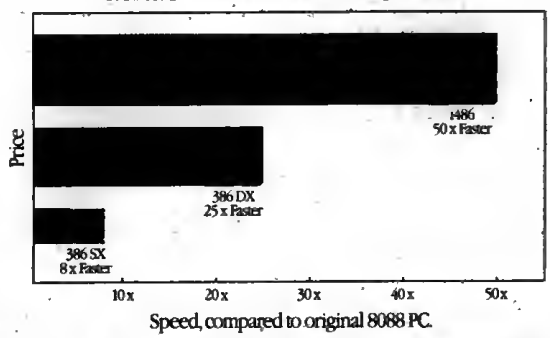
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Chicago Trade Board installs after-hours trading system

BY ELLIS BOOKER
CW STAFF

CHICAGO — Commodities traders here will soon be able to play the futures market on a 24-hour cycle, thanks to two electronic systems recently announced by the Chicago Board of Trade (CBOT).

Aurora, an electronic auction market trading system for use after regular trading hours, and EOS, its electronic order delivery system, will replicate the action inside the futures trading pit and allow CBOT "to better serve the global marketplace," said CBOT Chairman Karsten Mahlmann.

The systems, now in prototype stage and scheduled for availability in the fourth quarter, involve technologies from Apple Computer, Inc., Texas Instruments, Inc. and Tandem Computers, Inc. The platform will be Tandem's parallel-processing, 32-bit Nonstop VLX. TI's Micro Explorer computers will attach to the Tandem host.

Introduced last May, the Micro Explorer combines TI's Explorer artificial intelligence microprocessor with Apple's Macintosh II.

According to Cindy Smith, media relations manager of Texas Instruments' data systems group, CBOT approached TI late last year because of the company's use of artificial intelligence in the gate assignment and display system for United Airlines.

AI a dynamic environment

"The AI environment also lets us prototype quickly," said Smith, who reported that the prototyping of Aurora, begun in January, took two months. Another advantage of the AI environment, she said, is that it is dynamic and allows a true replication of the open-outcry system used by traders. "Traders will see a graphic of a trading pit on the screen and be able to know who they're trading with," Smith said.

CBOT, which has more than 3,000 members, believes that the old-fashioned, open-outcry auction market found in the trading pits is still the "best market possible." Therefore, CBOT plans to restrict the use of Aurora during U.S. trading hours.

The CBOT has not decided on the number of Micro Explorer terminals to be deployed, but a decision on the type of network for those workstations is imminent, according to a spokesman from CBOT.



"We've got a warehouse the size of a football field. Everyday there are as many as 5000 new aircraft parts coming in or moving out. And they could be in any one of twenty different places.

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Now when customers call we can find what they need in seconds. It was a big change for everybody, from management to loading dock people. But we all wanted it to work—so it has." —*Dick Wolfe, Product Support, Branch Manager (right) with Lou Wade, Product Support, Systems Analyst (left), John Gibson, Customer Support, Manager (center)*

MCDONNELL DOUGLAS
A company of leaders.

U.S. vs. Japan

CONTINUED FROM PAGE 21

heard reports that the Japanese firms were slashing their prices to gain the prestigious account. Smart warned school officials that such moves could be subject to antidumping proceedings.

MIT Provost John Deutch, who conceded that the federal government would bear much of the cost of the machines through research grants to MIT, quickly backed down. "It became clear that important elements of the federal government would prefer to see MIT acquire a supercomputer based on U.S. technology," he said.

This protectionist attitude has left some vendors smarting. "We're not two-headed monsters; we're technically competent professional people who'd just like a chance to play on a level playing field," said Samuel Adams, a vice-president at HNSX Supercomputers, Inc., a joint venture of NEC and Honeywell, Inc. in Minneapolis.

A key reason for the sparring is that a supercomputer sale makes a big splash — some cost upward of $20 million. "If we were talking about Toyotas, I don't think it would be such a big deal," said John Sell, president of the Minnesota Supercomputer Center in Minneapolis.

Some charge that this thinly veiled jingoism has obscured what are essentially technological issues. "Supercomputers are only tools, and the important thing is how we use these tools," said Gary Smaby, an analyst at Needham & Co., a New York-based research firm. "It's the carpenter we should worry about, not the hammer."

But critics contend that the concerns are real, with Japan intentionally bobbling U.S. firms by selling them chips that are a generation behind its own. Cray has tried to alleviate this and is experimenting with building faster chips around gallium arsenide instead of silicon.

The Japanese, however, may have hurt themselves by lagging behind in several critical areas, including a chronic shortage of application software. Sell said his decision to buy a Cray-2 was not colored by politics but was based on the machine's performance capabilities.

If the battle continues, analysts warn, only losers will result. "It's the U.S. researchers and scientists who will be deprived," said Lana Kartasheva, program chairwoman at the International Supercomputing Institute in St. Petersburg, Fla. "Ultimately, we will hurt no one but ourselves."

NEW PRODUCTS — SYSTEMS

Processors

McDonnell Douglas Information Systems Co. has introduced an entry-level version of its Series 18 family of superminicomputers.

Designated the 18/600-11, the system comes with 4M bytes of main memory, 2M bytes of cache memory, two 150M-byte disk drives, a tape drive and 32 serial device ports, the vendor said. The product is reportedly upgradable to two levels of additional CPU power and expandable to 16M bytes of memory, four tape drives and 300 ports.

The system utilizes the company's Reality relational database operating system and is available for less than $100,000.

McDonnell Douglas Information Systems
1801 St. Andrews Place
Santa Ana, Calif. 92705
714-566-4000

A family of computers based on reduced instruction set computing (RISC) technology has been unveiled by Motorola, Inc.

Dubbed the Delta Series 8000, the multiuser, multiprocessor systems are based on the Motorola 88000 RISC processor and offer system performance ranging from 17 million to 60 million instructions per second, the vendor said. The series will reportedly utilize the System V/88 operating system, which is Motorola's AT&T Unix System V, Release 3 derivative.

The computers are available in several configurations, with prices ranging from $52,940 for a Model 8864SP single-processor to $80,190 for the Model 8864AP quad-processor. Deliveries are scheduled for the third quarter.

Motorola
10200 DeAnza Blvd.
Cupertino, Calif. 95014
800-556-1234



Motorola's Delta Series
departmental computer Model 8864

An array processor developed specifically for Digital Equipment Corp.'s Vaxeln real-time operating system has been introduced by Sky Computers, Inc.

The latest version of the Sky Warrior-Q/20 array processor provides 20 million floating-point operations per second and comes with extensive software support, according to the vendor. The unit reportedly includes a library of more than 575 vector subroutine functions that can be executed directly from Fortran or C language programs. The system costs $10,900, and quantity discounts are available.

Sky Computers
Foot of St. John Street
Lowell, Mass. 01852
508-454-6200

Fujitsu Microsystems of America, Inc. has strengthened its top-of-the line Series 2000 computers, which are based on Pick Systems' Pick operating system, by increasing the number of users supported, disk capacity and execution speed.

According to the company, Release 6.0 of Fujitsu's version of Pick enables the System 2600 to support 256 users; the System 2500/Model 80 to support as many as 160 users; and the System 2400/60XP to accommodate 128 users. Storage capacities have also been increased for all Series 2000 systems.

The options are scheduled for availability this summer, and the systems will be priced from $32,500 to $132,000, depending on configuration, the company said.

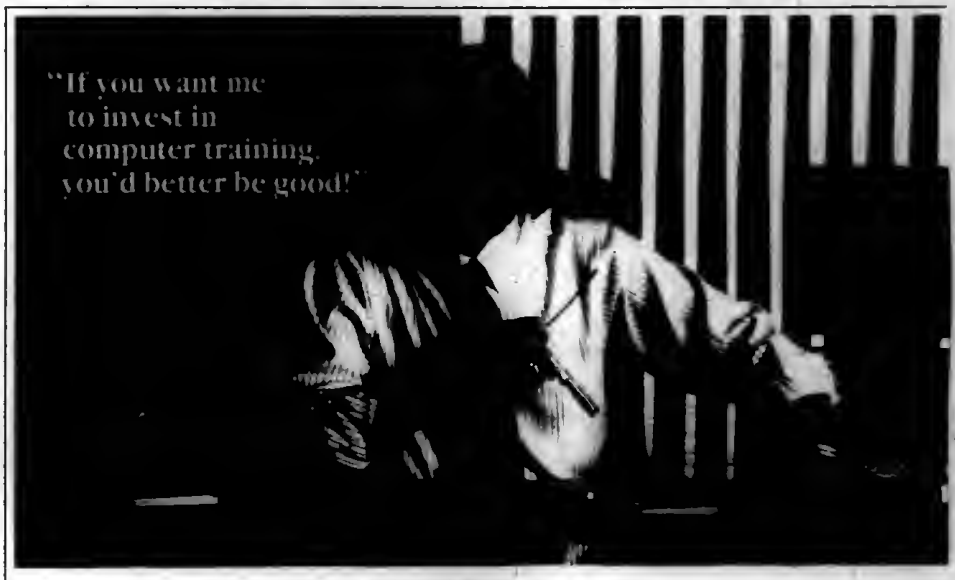
Fujitsu
3055 Orchard Drive
San Jose, Calif. 95134
408-434-1160

NCR Corp. has announced a Unix-based business computer system, the Tower 32/835.

The company said the 32-bit multiprocessor system was designed to function in one of several capacities: as part of a distributed processing network, as a departmental system serving many users or as the primary computer system in a small to medium-size business or organization.

The computer is reported to support as many as 256 users and can accommodate up to 128M bytes of memory. Several communications options are supported, including Ethernet, asynchronous, bisynchronous, IBM Systems Network Architecture and CCITT X.25 protocols. An entry-level configuration of the NCR 32/835 costs $98,160.

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Data storage

A series of mass storage peripherals designed for Digital Equipment Corp.'s Microvax 2000 has been announced by Trimarchi, Inc.

The Equaliser series offers large-capacity magnetic disk drives, erasable optical disk drives and tape drives to Microvax 2000 users, the vendor said. The series' Datakeg disk drives reportedly range from 300M to 600M bytes in capacity and are priced at $5,500 and $8,500, respectively. Both devices feature an 18 msec seek time.

The Las-er-ase, Trimarchi's erasable optical disk, has a 600M-byte capacity and an average seek time of 45 msec, according to the company. It has a price tag of $6,200.

Trimarchi
P.O. Box 560
State College, Pa. 16804
814-234-5659

MDB Systems, Inc. has announced a series of removable media canisters for its Data Shuttle family of shock-isolated removable mass storage subsystems.

The Data Shuttle canister series was designed to allow the use of optical disks and tape units in both full and half-height form factors, the vendor said. The canister reportedly provides shock protection for the media device and allows easy access to the removable media. The company will also supply the canisters in an empty configuration so that customers may integrate their own device. The product is priced from $600.

MDB Systems
1110 W. Taft Ave.
Orange, Calif. 92665
714-998-6900

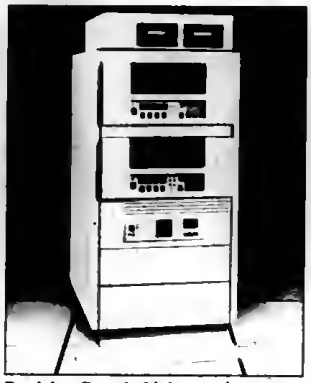
Decision Data Computer Corp. has announced the 7400 Series Tape Subsystems, a line of high-capacity storage products for IBM midrange computer systems.

The 7460 8mm cartridge drives reportedly hold up to 2.3G bytes of data, which is the equivalent of 12 or more reels of ½-in. tape. The product is priced at $18,895 for a single cartridge unit/tabletop version.

For ½-in. reel-to-reel tape users, the rack-mounted 7420 reportedly offers dual-density formats (1.6K/6.25K bit/in.) and a data transfer rate of 625K byte/sec. It is priced at $27,495.

All tape drives in the 7400 series operate off 120V or 220V power supplies, according to the vendor.

Decision Data
100 Witmer Road
Horsham, Pa. 19044
800-523-5357



Decision Data's ***high-capacity tape subsystem for IBM midrange systems***

I/O devices

Digital Equipment Corp. has reportedly extended its tiered pricing program to include the company's entire VT300 terminal line and desktop printers.

According to the vendor, the new ordering methods allow customers to save directly from DEC through Decdirect, the company's toll-free ordering number for small systems, add-ons, upgrades and supplies and DEC's Electronic Store, which allows customers to access and order items electronically through a product catalog. Complete pricing and ordering information is available from the company.

The Decdirect toll-free ordering number is 1-800-344-4825; the DEC Electronic Store ordering number is 1-800-332-3366.

DEC
129 Parker St.
Maynard, Mass. 01754
508-493-4297

Applied Digital Data Systems, Inc. (ADDS) and Human Interface Technologies in Richmond, Va., have jointly announced a touch-screen terminal designed for use with the ADDS Mentor Pick Systems' Pick-based computer series.

The ADDS Touch 2020 70Hz video display terminal reportedly includes a resistive overlay membrane and special controller. It is offered with Human Interface Technologies' Tool Kit, which includes software code and documentation for converting existing applications or creating new ones for touch technology, the vendor said. Training and telephone support are included.

The terminal is scheduled for delivery in May and will be priced at $1,595 per single unit.

ADDS
100 Marcus Blvd.
Hauppauge, N.Y. 11788
516-231-5400

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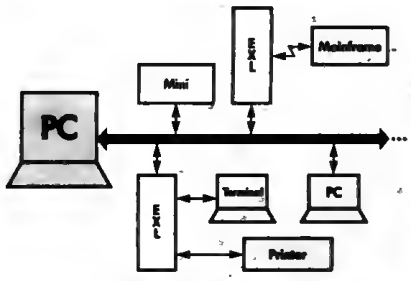
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NEW PRODUCTS — SOFTWARE

Database management systems

Systems Center, Inc. (formerly VM Software, Inc.) in Reston, Va., has announced Release 1.0 of DB/Auditor for IBM's DB/2 software system.

According to the company, the product is a complete auditing tool for DB/2 that aids database administrators, security analysts and auditors in producing comprehensive audit reports. The audit reports are said to feature unauthorized access attempts; attempted read/writes; create, alter and drop activities; and authorization-change activity. Other functions are also provided.

A CPU license for DB/Auditor is priced from $10,000 to $16,000.

Systems Center
1800 Alexander Bell Drive
Reston, Va. 22091
703-264-8000

A relational database management system targeted at stock and bond traders as well as automated teller machine network operators has been released by Concurrent Computer Corp.

Reliance Plus runs on Concurrent's Series 3200 family of real-time computer systems and reportedly can provide support for thousands of local or remote terminals in real-time transaction processing applications. The software is priced from $6,900 to $38,870, depending on processor performance range.

Concurrent
106 Apple St.
Tinton Falls, N.J. 07724
201-758-7000

Development tools

A full-screen editor for APL has been introduced by Interprocess Systems.

The Interactive APL2 Editor reportedly incorporates both full-screen editing interaction with APL and an interactive debugging facility into one package. It is targeted at applications developers who build multiuser systems that need to share files and have a full-screen manager, the vendor said.

One-time license fees range from $3,000 to $5,000, depending on the customer's CPU group. It is supported for most IBM display terminals under IBM's VM/CMS or MVS/TSO with IBM's APL2 Program product.

Interprocess Systems
Suite 690
9040 Roswell Road
Atlanta, Ga. 30350
404-992-8400

Graphael, Inc. has released an enhanced version of its object-oriented programming language.

G-Logis 3.0 was developed specifically for use on Digital Equipment Corp.'s Vaxstation, the vendor said. The programming language reportedly belongs to a class of Prolog systems implemented in LISP, and G-Logis applications can be composed of pure Prolog, pure LISP or a mixture of both. G-Logis requires VAX Common LISP 2.2 and VMS Release 4.6 and is priced at $10,000.

Graphael
255 Bear Hill Road
Waltham, Mass. 02154
617-890-7055

Digital Equipment Corp. has introduced three prepackaged development kits specifically developed for independent software vendors.

The products include the Vaxstation 3100 Entry ISV Developer Kit and the Vaxstation 3100 Expandable ISV Developer Kit, both of which support DEC's VMS and Ultrix, and the Decstation 3100 ISV Developer Kit, configured for Ultrix application developers. Pricing is dependent on hardware and memory configurations supplied with the kits and ranges from $11,900 to $24,900.

DEC
146 Main St.
Maynard, Mass. 01754
800-332-4786

Applications packages

Britz Publishing, Inc. has released an enhanced version of its word processing software system for the IBM System/36 environment.

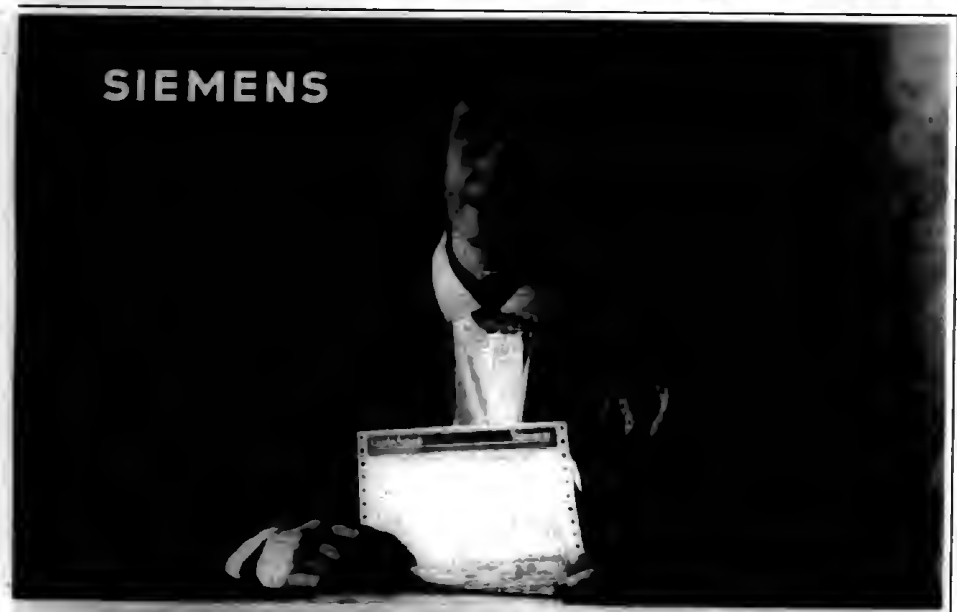
According to the company, Release 6.0 of Bword provides simultaneous data- and mail-merge capabilities, access to the spelling dictionary while editing text and a revised directory system. Additional prompt screens and Help text have also been incorporated into the program. Bword 6.0 costs $99.

Britz Publishing
1814 Capital Towers
Jackson, Miss. 39201
601-354-8882

H&M Systems Software, Inc. has released an enhanced version of its direct data entry system software.

Keyfast/De4 reportedly now permits on-line update of user files. It is for use with IBM's VSE/SP, MVS/SP, MVS/XA, MVS/ESA and VM/HPO operating systems and is priced between $29,000 and $38,000. Those who upgrade pay the difference of the original and current prices.

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Maywood, N.J. 07607
800-367-3366



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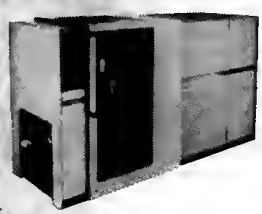
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Corporate Distribution and Support Services
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Peripheral Systems Division
240 East Palais Road
Anaheim, CA 92805
(714) 991-9700

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MAC NUGGETS

Julie Pitta

On Apple's summer crop



Along with rising temperatures, summertime should bring products that have been the subject of heated speculation among Apple watchers.

The Macintosh portable is expected to make its debut at August's Macworld Expo in Boston. Users have been eager to get their hands on one, and their excitement over the possibility of a portable Mac has fueled a lot of the rumors about the machine.

Apple has faced a couple of significant obstacles in its efforts to repackage the Mac. It needed to find a display technology with resolution sharp enough to project the Mac's graphics legibly. Users briefed about the machine said that Apple has opted for a new technology called "active matrix."

Also, Apple had hoped to standardize on Motorola's 68030 microprocessor because it offers a better platform for an as-yet-unreleased multitasking version of the Mac operating system. However, because there is no version of the 68030 yet available that is based on CMOS — a low-power consump-

Continued on page 38

How much for your services?

End users can win with information centers run on chargeback basis

BY MICHAEL ALEXANDER
CW STAFF

Whether an information center should be run as a profit center or as a budgeted operation has been a long-running controversy among MIS personnel, but from the point of view of end users, chargeback systems may be more beneficial.

"It is surprising that more companies are not into chargeout systems in a big way as it pertains to computing," said Brandt Allen, a professor at the University of Virginia's Colgate Darden Graduate School of Business Administration in Charlottesville, Va.

He noted there are several compelling reasons for operating an information center as a profit center, especially in organizations in which end-user computing is rapidly maturing.

"We're seeing a big move away from centralized computing centers out to the operating managers," Allen said. "From this decentralization comes a partnership relation between the providers of the service and business users." This link helps to keep costs in line because operating managers are more involved with their projects and work to keep costs down.

An information center operated as a profit center is also more likely to provide better service to end users and respond more quickly to demands of individual departments, said John Dubiel, a systems assurance division leader at Boston Edison Co. in Boston.

The problem of establishing a yearly budget shifts from the information center's personnel to end users because the demand of end users on the center ultimately determines what the budget will be, Allen said. "If the demand is there and customers are willing to pay to get more help, then computer services can expand to meet the demand," he said. "If demand is up and people are seeing a payoff, there is an automatic budget adjustment because it is flexible and adaptive. The reverse is also true: If demand falls off, then computer services has to cut back."

The information center often determines its charges based on prices set by local providers of training and support services, leaving it to users to decide what services are valuable and where they should purchase them.

"What happens is that end users become more informed consumers of technology and computer services benefits," Allen said. "In smart organizations, they may not want to be in the business of supporting end users." Consequently, some centers set prices fairly high to drive end users to use local services or to filter out the routine types of demands that can be resolved within the end user's department.

The same philosophy can be used to steer the company's adoption of new technology. If end users insist on sticking with



outmoded technology, the center can set high support prices to motivate end users to move over to newer technology.

"We're getting to be functionally more like consultants,

Continued on page 44

Users cool to MS-DOS 4.0, see little reason to switch

ANALYSIS

BY PATRICK WAURZYNIAK
CW STAFF

REDMOND, Wash. — Despite Microsoft Corp.'s redress of early problems with its graphically oriented MS-DOS Version 4.0, Microsoft users appear reluctant to migrate their applications to the operating system.

In addition, Microsoft, which advised systems vendors last fall not to ship MS-DOS 4.0 until an update was released, last week disclosed that an OEM had found yet another bug in the program.

While some users may be running the initial IBM PC-DOS Version 4.0 or an early MS-DOS Version 4.0, most users reportedly now have the updated MS-DOS Version 4.01.

The latest bug, although admittedly a minor one that would occur only during a sequence of obscure commands and with storage partitions of more than 32M bytes, can potentially cause a "significant" loss of data, although no users have thus far lost data, Microsoft said.

Microsoft DOS product manager Mark Chestnut said the company is releasing a patch directly to its major OEMs and to users via Compuserve.

The most recent vendor to announce shipments of DOS 4.01, Compaq Computer Corp., will make necessary changes

Continued on page 46

Inside

- Cast-off computers work in harmony at MIT. Page 37.
- Ashton-Tate's Esber discusses diversification plan. Page 37.
- Look-alike 80386SX PCs debut at Comdex. Page 38.

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The Micro Focus Users Conference will be held in the San Francisco Bay Area during the first week of May. If you're a Micro Focus customer, consider what your company might gain from attending this conference.

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- Using Concurrency in Your DOS Applications
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- Optimizing Your Programs Using ANSI* 85 COBOL Features
- Making the Financial Case for Mainframe Development on the PC
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Retailer begins use of OS/2 to monitor remote retail sales.

Host International has begun to use OS/2 to give computing capabilities to their individual concessions and to network shops with regional offices for daily downloading of sales and employee data. The internally developed system also provides for remote data entry, collection and reporting.

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High-performance graphics on microcomputers are made possible with OS/2 Graphics Development Toolkit from Graphic Software Systems. This package supports all OS/2 features while maintaining source code compatibility with the DOS Graphics Development Toolkit. It allows dynamic loading plus workstation control. Functions for lines, arcs, polygons, circles, bars and advanced graphics are all



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Micrografx announces an easy way to port Windows applications to OS/2 Presentation Manager.

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SMALL TALK

Douglas Barney

Keeping the 1-2-3 clones at bay



Status quo or no? Ever since Lotus climbed to the top of the spreadsheet charts, competitors have tried in vain to knock it off.

The blind confidence of these vendors ironically comes from the Lotus example. When 1-2-3 hit the streets in 1983, the spreadsheet leader was Software Arts. The debut of the Lotus product was like a killer chest wound to Software Arts, which was messily sapped of all life.

For would-be Lotus killers, every strategy in the book has brought little success. Some clones tried to duplicate Lotus exactly but sold for a fraction of the cost.

Others tried to jam in more features with products such as Surpass, Supercalc and Daybreak Technologies' Silk.

Firms like Javelin Software tried to sell a new way of doing financial modeling, one that many believe is theoretically better than 1-2-3's simple rows and columns.

Now Microsoft is zealously trying to sell ease of use and graphics.

But the clones have stagnated; products such as Surpass Software Systems' Surpass have been sold off, and Computer Associates' Supercalc, despite packing more power, continues to struggle. Javelin had cut its price and was hanging by its fingernails until a buyer was found.

Even Microsoft, the biggest challenger yet, is having a tough time cracking the market despite a money-back guarantee. Just recently, Microsoft did something that no strong competitor ever does in the software market. Through dealer incentives, it cut its effective street price to $200. You can probably get it for less if you really try.

Nobody is going to argue rationally that in terms of features, 1-2-3 is still the best spreadsheet — although in terms of speed and worksheet size, it still reigns supreme after some three upgradeless years.

And few will dispute that, for many chores, spreadsheets are an awful way to go. Maybe a

Continued on page 46

An irresistible oppor-tune-ity

MIT researcher conducts computerized symphony via networks, workstations

ON SITE

BY JULIE PITTA
CW STAFF

CAMBRIDGE, Mass. — A medley of workstations are making beautiful music together at MIT's Media Laboratory.

Michael Hawley, an MIT researcher, has created an electronic orchestra using workstations from Sun Microsystems, Inc., Apple Computer, Inc. and IBM. "It's a rat's nest of computers," Hawley said. The network was put together from equipment that was "lying around," he continued. The Sun workstation was donated by Sun Vice-President of Research and Development Bill Joy, and the Macintosh was also a donation. Hawley discovered the two grand pianos — the only real instruments in this computerized symphony — getting dusty in MIT's artificial intelligence laboratory. An IBM Personal Computer AT also had been unused.

Some of the melodies emanating from this computer combo bear little resemblance to what a classical music lover might bear from the New York Philharmonic. "I'm not worried about replicating the sound of the Boston Symphony Orchestra," Hawley said. "Some of the voices sound like real instruments, but some don't."

A Sun-3/260, a workstation powered by a Motorola, Inc. 68020 microprocessor running at 25 MHz, acts as the conductor. The Sun workstation is connected to an external box containing a VME interface board, which is in turn connected to four real-time Musical Instrument Digital Interface (MIDI) processors.



STELLA JOHNSON

MIT's Hawley *fiddles with PCs, pianos*

A rack of synthesizers that is hooked up to the MIDI processors is the source of the actual "voices." A single synthesizer boasts 128 voices or sounds. Hawley said the number of synthesizers on the rack can vary, depending on the kind of composition the user wishes to generate. An MIDI processor also interfaces with one of the two grand pianos.

A Macintosh IIX is hooked up to the MIDI processors in the same fashion as the Sun workstation. The Mac provides the network with more storage capacity and system memory. "Everything Scott Joplin wrote is at least 1M byte, and everything Brahms wrote is 5M bytes," Hawley explained. "There are real bandwidth problems."

The workstations are connected using Ethernet and Apple's Appletalk.

To conduct the orchestra, the user moves between a silent Yamaha keyboard and the Sun workstation. Among the applications created by the researchers is a scoring program that allows the user to create arrangements and play them back. "You play stuff on the [musical] keyboard, store it and have it played back," Hawley said. "That way, you can scrape away the clunkers and add new notes."

Sitting on pedestals

What the audience sees are two majestic black grand pianos accompanied by two workstations — painted black by laboratory staff — sitting on pedestals, all shown to their best advantage with dramatic track lighting. What it cannot see is the IBM PC AT sitting behind a curtain and controlling one of the pianos.

The AT is equipped with a custom Zilog, Inc. Z80 processor that sits in a multibus card cage. A cable connects it to the digital piano on the stage.

"The piano is like a printer," Hawley said. "It works like the best player piano in the world."

Hawley and his group are testing the limitations of this orchestra. "We've got some very complex pieces that we've created," he said. "We've been able to create pieces that play 150 notes per second on the grand piano."

Ashton-Tate pitching a tent in mini market

BY PATRICK WAURZYNIAK
CW STAFF

TORRANCE, Calif. — During the next year, Ashton-Tate Corp. will diversify from its traditional personal computer software base with a strategy that calls for the organization to branch out toward larger hardware platforms in the workstation and minicomputer environments.

Ashton-Tate, which recently disclosed plans to increase an investment in Bedford, Mass.-based Interbase Software Corp. to a majority share, is positioning to stake its claim in the minicomputer database market with its upcoming shipment of OS/2 SQL Server, a product jointly developed with Microsoft Corp. and Sybase, Inc. that is scheduled for delivery later this month.

Ashton-Tate Chairman and Chief Executive Officer Edward M. Esber Jr. said in a recent interview that if Ashton-Tate enters the minicomputer database market, it will do so with an entry from Interbase, which is a developer of an SQL-based database management system for midrange computers.

Esber, who claimed Interbase's relational database management system is "very high-performance and state-of-the-art," said Ashton-Tate has been working with Interbase on using some of its RDBMS engine technology in workstation versions of Ashton-Tate's current PC database, Dbase IV.

Going back for more

Ashton-Tate, which bought about 20% of Interbase a year ago, last month announced its intentions to acquire more than 50% of the firm. Esber said the "increased ownership is an affirmation or confirmation that both companies are happy with the relationship."

Ashton-Tate, which is also an investor in Interbase's rival Sybase, sees the investment as a potential entry into the minicomputer market in which Interbase currently sells database products for the Digital Equipment Corp. VAX and other minicomputers.

"At some point in time, should we increase our ownership [in Interbase] further, you will see a complete product line from Ashton-Tate — whether some of it's Interbase technology or Ashton-Tate technology or current Dbase technology — that spans a broad range of machines," Esber said.



Ashton-Tate's Esber *says Interbase can open some doors*

Ashton-Tate's strategy for migration hinges on what Esber calls an "ultimate plan [for] maximum market share in the PC, server and minicomputer database worlds.

"Ultimately, we're working right now on a version of the Interbase engine for a future release of Dbase," Esber said, "but [with] this type of stuff, the end user at the PC level does not feel the engine as much as they feel the front end. What we have today is a Dbase engine in a Dbase product, and people want SQL engines that efficiently run Dbase, as opposed to Dbase engines that also run SQL."

Ashton-Tate, however, is not interested in attempting to extend its successful Dbase technology from the PC all the way to mainframes as others such as Oracle Corp. have accomplished via a reverse route from the high end down to the PC level.

"I will state categorically for the record again that I am not interested in building a mainframe database," he said.

Meanwhile, Ashton-Tate and DEC are developing time-sharing versions of VAX databases and optimized Dbase versions for DEC workstations.

That alliance, announced last year, should bear fruit later this year and through next year, although Esber declined to be more specific.

Grid, Tandy toss similar 386-based PCs into desktop arena at Comdex

BY MICHAEL ALEXANDER
CW STAFF

CHICAGO — Tandy Corp. and Grid Systems Corp. took the wraps off their first personal computers based on the Intel Corp. 80386SX microprocessor at Comdex/Spring '89 last week. The two models, each available in three configurations, are virtually identical aside from cosmetic differences.

Grid, long noted as a marketer of laptop computers, has been trying to cash in on the desktop business since its acquisition by Tandy last July. In the past month, the company has introduced several Tandy-made Intel 80286- and 80386-based machines, including a model based on IBM's Micro Channel.

The basic machine from each manufacturer — the Grid-Desk 386ISX Model 1 and the Tandy 4000 SX — is built around a 386SX microprocessor with a clock speed of 16 MHz and comes equipped with 1M byte of random-access memory; IBM Video Graphics Array graphics; a 3.5-in. 1.44M-byte floppy disk drive; one 8-bit and four 16-bit expansion slots; two dedicated memory slots; parallel and serial ports; and a 200-watt power supply. The machines also support industry-standard integrated drive electronics "smart drives." The integrated drive frees up the card slot normally used by a hard disk drive controller card by integrating the controller on the motherboard. Last, both companies are touting their machines' small footprints in public relations and promotional materials.

The new Grid and Tandy machines are also available in 40M- and 80M-byte hard disk drive configurations.

Tandy's machines are priced at $2,599 for the base system without a hard disk drive, $3,248 for a 40M-byte system and $3,498 for an 80M-byte system.

Grid's machines are priced at $2,795 for the base system, $3,995 for a 40M-byte system and $4,495 for an 80M-byte system. Grid's prices, which are considerably higher than Tandy's for the 40M- and 80M-byte hard disk drives, reflect the fact that the drives are small computer systems interface (SCSI) models. Tandy does not include SCSI drives as standard, although they are available.

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Pitta

CONTINUED FROM PAGE 35

tion semiconductor technology — any 68030-based portable would have the potential to overheat and would consume an unreasonable number of batteries.

There's also the problem of the mouse. How would a portable Mac user enter data? Apple will offer a number of alternatives, say users familiar with the machine, including input devices such as a tracking ball and a wand-like feelix tool.

The Mac portable won't be cheap; speculation has it priced in the $3,000 range. What may be an even bigger challenge than any technical issues Apple has to resolve will be the competition it gets from MS-DOS-based portables.

While Apple is pushing its portable out the door, MS-DOS-based portables are in their third incarnation. Last December, NEC Home Electronics, Inc. began shipping its Ultralight, an 8½- by 2- by 11-in. laptop weighing 4 pounds and costing $2,999. The portable Mac isn't expected to be light enough to be classified as a laptop; users who have seen it say it's about 16 pounds.

Larger and heavier MS-DOS portables are a good deal cheaper than a machine like the Ultralight. A Toshiba portable can be purchased for less than $1,000.

Don't expect the Mac portable to be a flop, though. Mac fans are used to spending a bit more for its user-friendly technology, and a number of corporate users have verbally committed to the machine.

A product that is likely to have more impact for corporate users and to Apple strategically is the Apple Token-Ring, another product that has been a subject of the gossip mills for several months. Apple itself is responsible for much of the speculation. Last fall, a product marketing manager promised that the Token-Ring/3270 card would be out before the end of the year. Gerald Malec, vice-president of business marketing, has said on the record that the Mac cannot be considered a standard within large corporations until it has this product.

Users didn't find the Token-Ring under their Christmas trees. It is now four months into 1989, and there still has not been an announcement. The latest rumor is that Apple will introduce the Token-Ring/3270 card in June. Again, Apple is playing catch-up. The Apple Token-Ring will run at 10M bit/sec., sources have said. IBM has already pushed its Token-Ring's performance to 16M bit/sec.

The Mac portable is nifty, but the Token-Ring/3270 product is essential. The relationship with DEC is nice, but if Apple is serious about playing in multivendor environments, it must offer full connectivity to IBM.

Pitta is *Computerworld's* West Coast senior correspondent.

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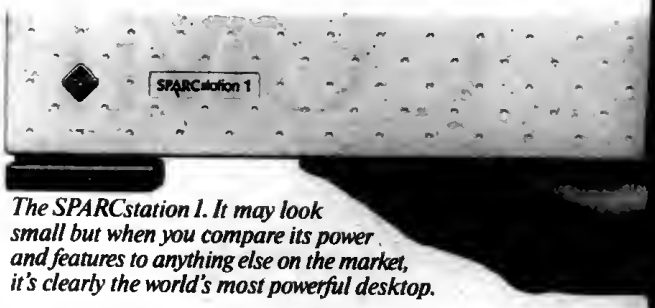


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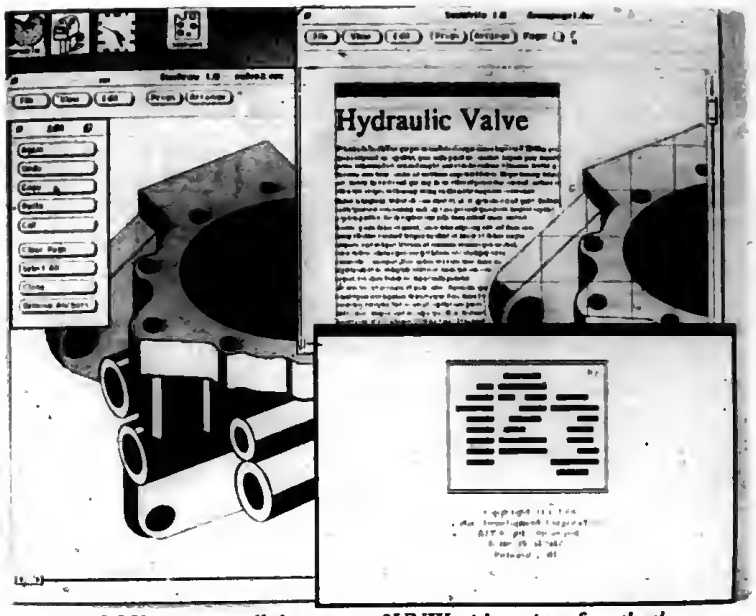
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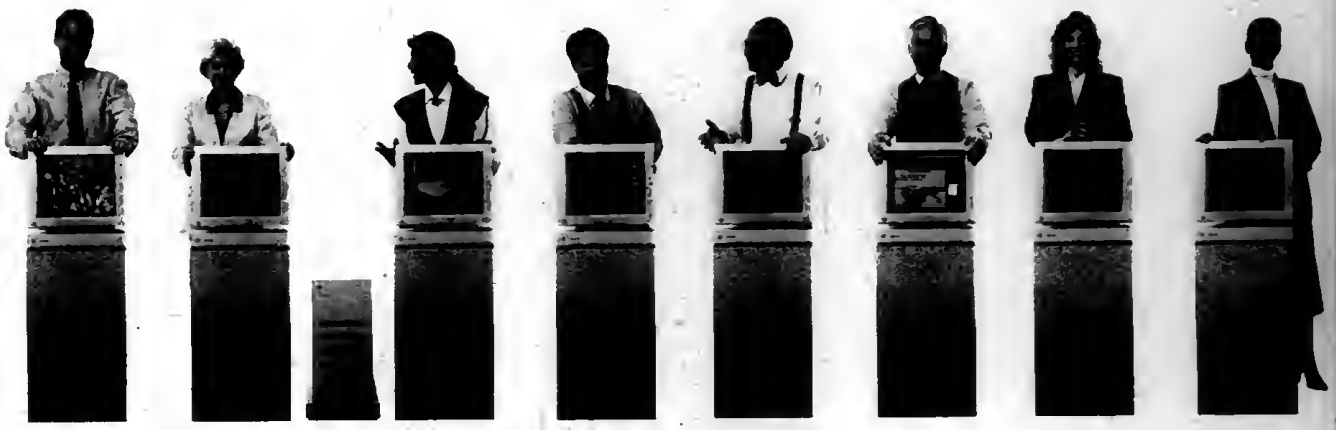
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Chargeback

CONTINUED FROM PAGE 35

and that is probably healthy," Boston Edison's Dubiel said. "It was a no-win situation when we administered the budget for the whole corporation. Now each department sets its own budgets."

Not all IC managers are convinced that charging fees for their services is an alternative to justifying their budgets, however.

In many instances, individual departments in some corporations simply refuse to take on the added burden of projecting what their costs for IC services will be each year. Also, some managers fear that the IC will become complacent because it has a captive audience and little competition. Finally, the organization simply may not be ready for such a setup.

It figures

There are essentially three levels of chargeback that companies can use to allocate the costs of running its information center to end users, according to Brandt Allen, a business professor at the University of Virginia.

"The first is no chargeout, where management considers computer costs as part of the corporate overhead," he explained. End users are not charged for their share of computer services.

The second level is cost chargeout, where the cost of running the IC is pushed down to the operating units. The company allocates costs according to the number of employees, the division size or some other measure but not according to their use of the IC's services, Brandt said.

The third level is the profit center, "where computer services loses money, breaks even or makes a profit," Allen said. Costs are set according to local competition for certain services, perhaps with a markup or based on negotiation with end users.

MICHAEL ALEXANDER

Developers build on Framework

TORRANCE, Calif. — Ashton-Tate Corp. has long sold runtime versions of its Dbase database management and development language, but now the firm is branching out and offering a special version of its Framework integrated software for developers.

Framework III Runtime trades Framework's pull-down menus for a tighter focus on the product's Fred programming language. However, developers can use the systems spreadsheet, database, word processing, graphics and electronic mail capabilities and distribute customized applications free of charge.

According to Ashton-Tate, many of the 300,000 Framework customers actually develop applications. Previously, however, application distribution required that each user have a full copy of the package.

Framework Runtime can also allow developers of database applications to add other functions such as graphics or spreadsheet views of data, said Dave McLoughlin, product manager for Framework III Runtime. In actuality, it is possible to link Framework Runtime to a Dbase runtime program, McLoughlin said.

The runtime package costs $995 and will ship by the end of this month, according to the company.

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"While KEDIT remains true to its heritage in retaining compatibility with the mainframe XEDIT, it is also one of the most feature-packed PC text editors around." PC Magazine, 10/31/88

KEDIT Version 4.0 is available at $150; OS/2 version is $175. Add $3 shipping. MC, VISA, American Express. Demo version available.

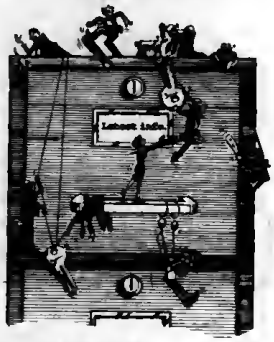
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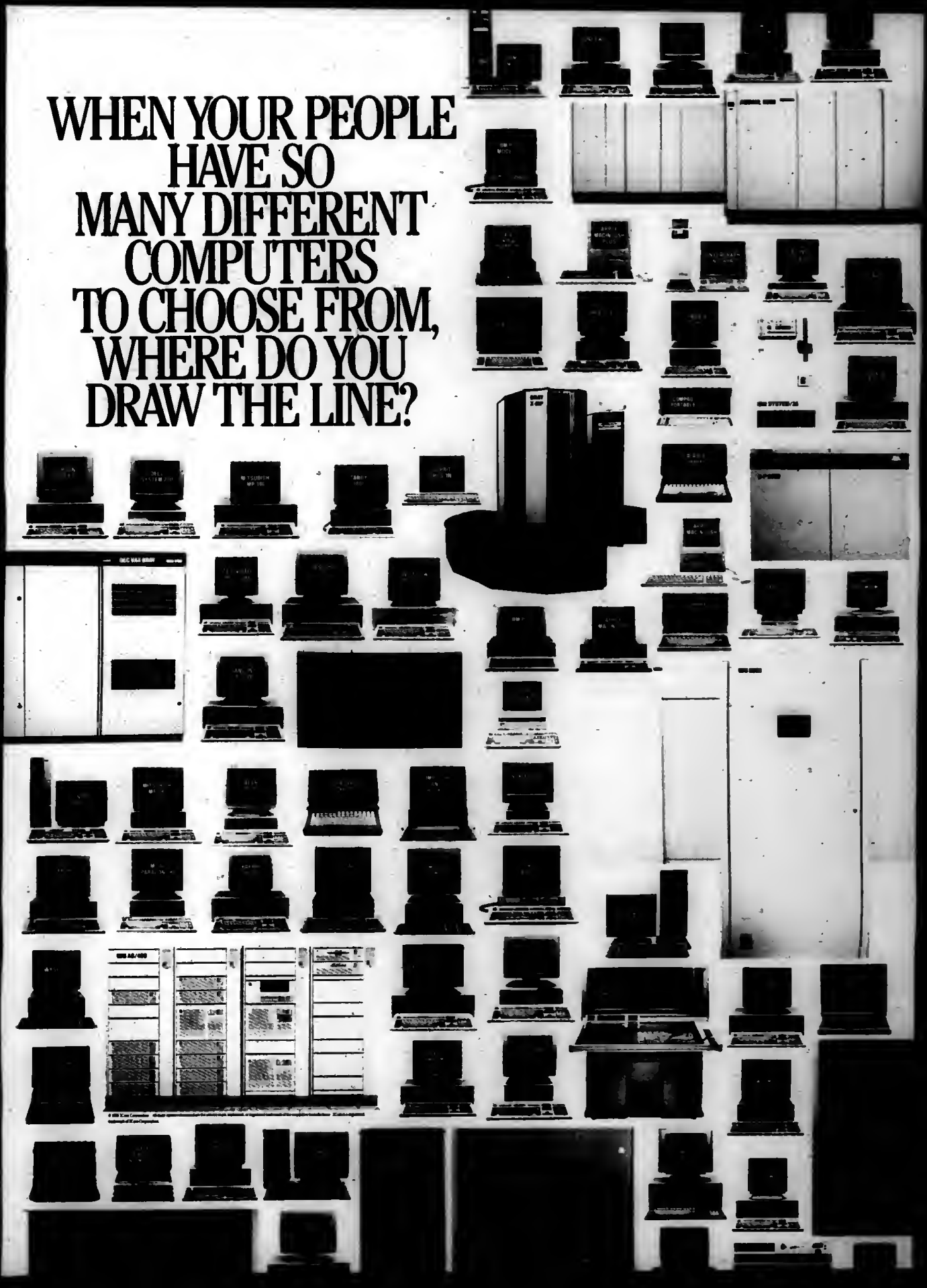
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WHEN YOUR PEOPLE HAVE SO MANY DIFFERENT COMPUTERS TO CHOOSE FROM, WHERE DO YOU DRAW THE LINE?



MS-DOS 4.0

CONTINUED FROM PAGE 35

prior to shipping the product this month, confirmed Compaq director of product marketing Lorie Strong.

Strong said Compaq has met resistance from users because the 4.01 update is larger than earlier MS-DOS versions. "A lot of our large accounts have said they have written their own interface for the DOS 3.3 level, so they're not anxious to introduce another user interface," Strong added. Compaq projects about 20% to 40% of its users will opt for 4.01 over DOS 3.31 by the end of 1989.

In spite of Microsoft's efforts, users who want an operating system with a graphical interface may skip MS-DOS 4.01 and choose from operating environments such as Microsoft's Windows with earlier MS-DOS versions or even migrate to OS/2 Presentation Manager.

"The real major issue is an interface issue," said Jack Dreiss, a partner at Chicago-based Arthur Andersen & Co., who advocates using Windows/386. "We've got as much interface as we need. We are no real hurry [to upgrade DOS]. It's much more of a Windows question. If Windows turns out to take some particular advantage of DOS 4.0, then maybe we would."

Microsoft's early versions of MS-DOS 4.0 were delayed after initial bugs showed up in IBM's PC-DOS 4.0. Among the early problems was a difficulty using the buffers and fastopen/x files for file caching in expanded memory.

Edwin Sund, a senior systems engineer in the personal computer support group of Weyerhaeuser Co.'s Information Systems division in Federal Way, Wash., did early evaluations of both PC-DOS 4.0 and MS-DOS 4.01 and continues to support the updates, although he said he does not push his firm's 7,000-plus PC users to upgrade.

"It really depends on what the user is looking for," said Sund, who estimated that several hundred users have DOS 4.0 at Weyerhaeuser. "We pretty much addressed the need for menus some time ago by creating our own, so we don't have a burning need for the [4.0] DOS Shell; although it's nice to have a standard menuing system in your package."

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Barney

CONTINUED FROM PAGE 37

Javelin package, a database or accounting or forecasting software is better. But people still use 1-2-3. In fact, only a boob would argue that 1-2-3 is a good word processor, but people still use it for just that purpose.

It all boils down to the Yugo syndrome. People know Yugo cars are cheap and handle superbly, but they are afraid that they will break down and that parts from Yugoslavia will be next to impossible to find.

As with General Motors, there is comfort in 1-2-3. The exact same thing happened with Excel on the Macintosh, and there is no way that Lotus — or anything else — will displace it.

As one IS manager put it, "If you meet someone a little better than your wife, it is not really worth it, with attorney's fees and dividing up the house. If I were to meet Bo Derek, I would consider it. Excel is not quite Bo Derek."

Unfortunately for Lotus competitors, spreadsheets aren't like word processors. You can't just swap over documents in ASCII and start writing again. People invest a great deal of time developing models, writing macros and just plain learning how to use the program.

NEVER PUT 1-2-3 down or say you are going to blow it out of the water. That is asking for an instant and painful wound.

So how long will the status quo remain? Probably for a pretty long time. The 1-2-3 interface has become truly ubiquitous. To push out 1-2-3, a new interface has to emerge.

That interface will probably be Microsoft's Windows and OS/2 Presentation Manager. Once the majority of people use this interface, a program such as Excel then has a good chance at capturing some of the market.

The problem still is getting people to switch from Lotus. If you have ever compared the two products, you find some interesting differences. Excel is easier and prettier to look at. But when you know what you are doing, 1-2-3 responds much more quickly.

Lotus understands that. In fact, 1-2-3/G, its graphical version of 1-2-3, really isn't that graphical.

What 1-2-3/G mainly adds is mouse control for painting ranges and changing the size of columns. But in essence, it is going to look and act a heck of a lot like today's 1-2-3.

Advice to potential competitors? Never put 1-2-3 down or say you are going to blow it out of the water. That is asking for an instant and painful wound.

Instead, competitors need to promote co-existence. Talk about compatibility, talk about what your product adds to 1-2-3 or how easy it is to migrate. But more than anything, wait a couple of years for that graphical interface to take over the market. Then you've at least got a shot.

Barney is a Computerworld senior editor, PCs & workstations.

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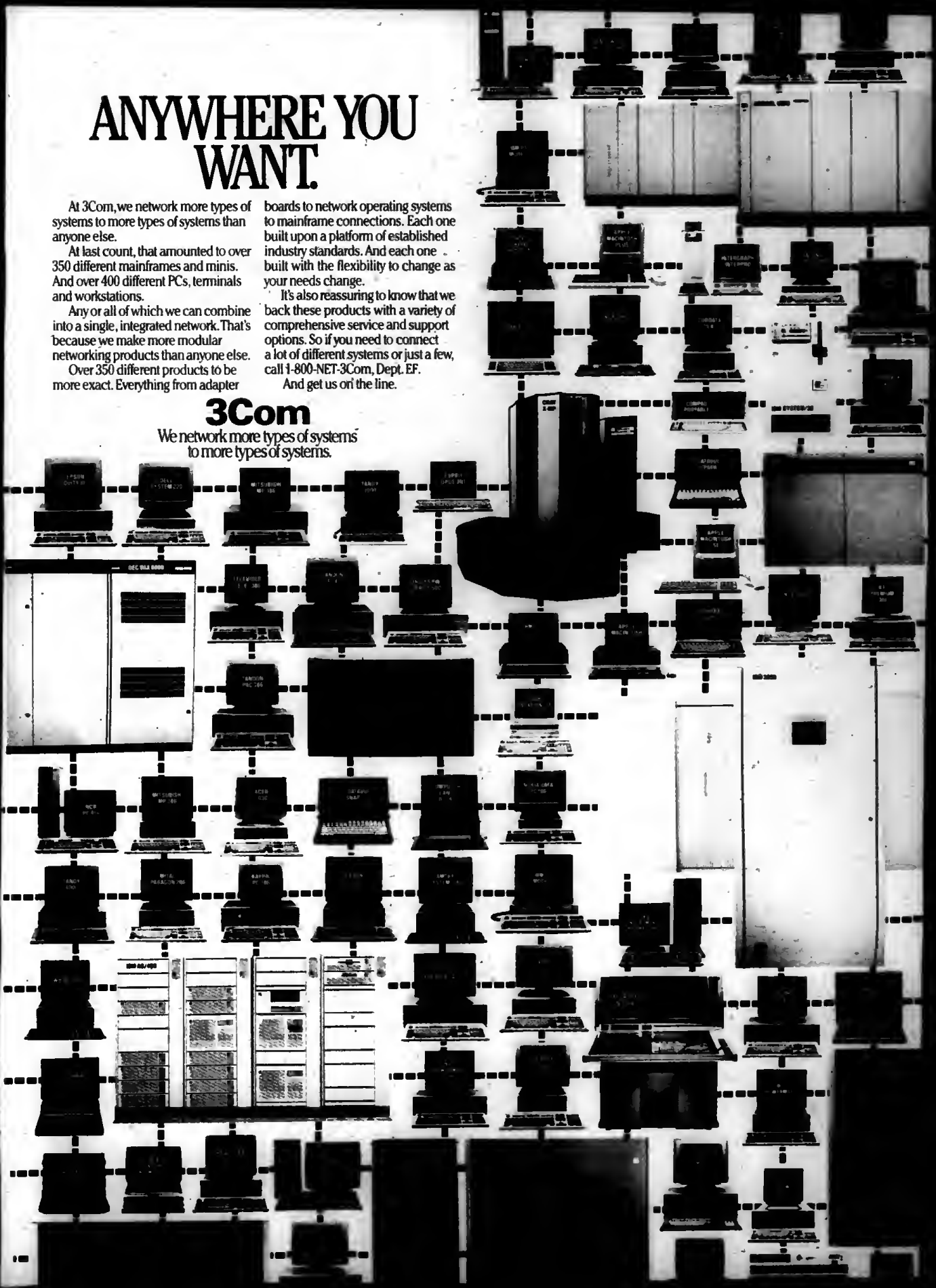
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NEW AT COMDEX/SPRING '89

The following products were announced last week at Comdex/Spring '89:

• Relisys, traditionally known as a computer peripherals manufacturer, formally entered the IBM Personal Computer AT-compatible systems marketplace.

The Milpitas, Calif.-based company's RX series reportedly includes two Intel Corp. 80386-based tower models and five Intel 80286-based computers. The tower units are available in speeds of 20 and 25 MHz and include on-board cache memory up to 64K bytes, the vendor said. They are priced from $4,195 to $4,895 and come standard with 1M byte of expandable dynamic random-access memory.

The five 286-based computers were designed for desktop use and feature an on-board floppy disk drive controller for optional 3½- and 5¼-in. drives, the vendor said.

Each model reportedly offers support for the Lotus/Intel/Microsoft Expanded Memory Specification Version 4.0. Pricing ranges from $1,695 to $2,495, depending on amount of memory and configuration.

The systems will initially be marketed to private labelers and OEMs, with volume shipments slated to be available through distribution channels at midyear, the company said.

• Output Technology Corp. in Spokane, Wash., introduced a 560 char./sec. dot matrix printer.

Designated the 560DL, the unit is targeted at both single and multiuser personal computer applications, the company said.

Features reportedly include front-panel menu programming, built-in bar codes and front and bottom paper-feed capabilities. The printer can accommodate both 80- and 136-column printing and is especially suited for spreadsheet applications, according to the vendor. The 560DL costs $1,995.

• Several color and monochrome monitors for use with IBM Personal Computers and compatibles as well as Apple Computer, Inc. systems were unveiled by Sampo Corporation of America.

The product line reportedly includes a general-purpose 14-in. color monitor, two 20-in. high-resolution color monitors and two 20-in. high-resolution monochrome units.

The monitors are reportedly scheduled to ship early in May; pricing will range from $789 to $2,695. Sampo is based in Norcross, Ga.

• A combination portable PC and organizer was introduced by Laser Computer, Inc. in Lake Zurich, Ill.

According to the company, the Laser PC3 incorporates word processing capabilities and includes an interface feature that permits users to transfer information from a desktop computer to the PC3.

Features reportedly include a spelling checker and 32K bytes of user memory. Available in both IBM PC-compatible and Apple Macintosh versions, the unit is scheduled to ship in May and will carry a price tag of $279.

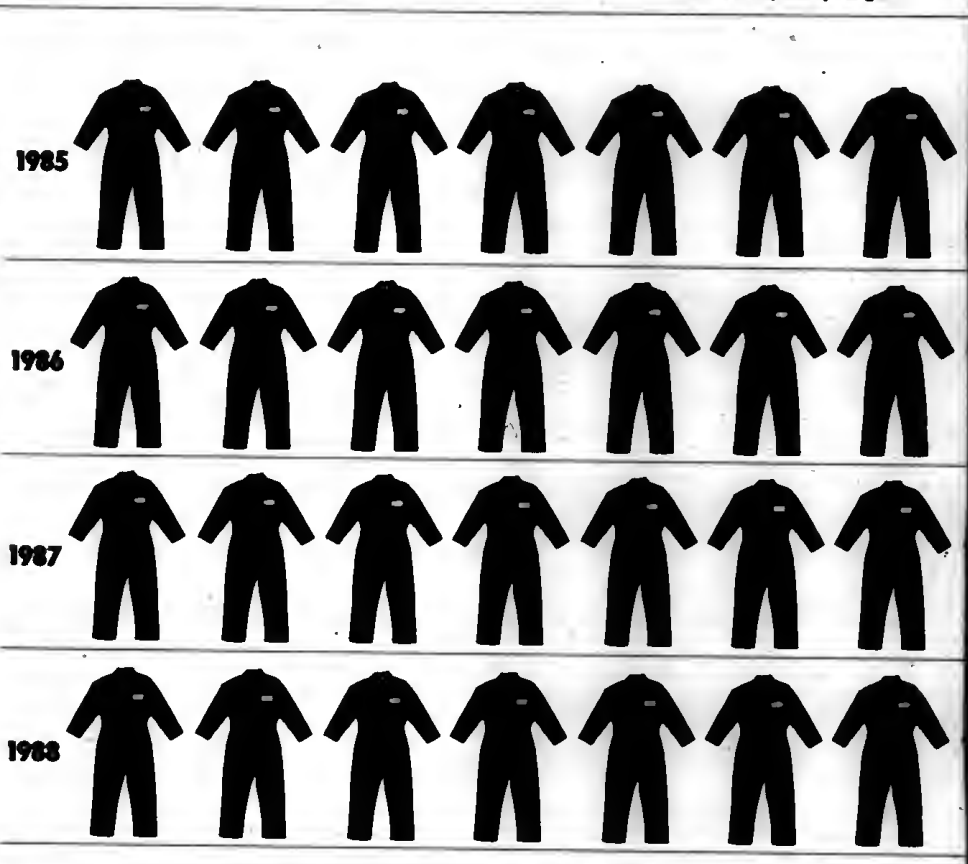
• A portable tape backup unit was announced by Interpreter, Inc. in Denver.

The Tapexchange 60TX reportedly plugs directly into the parallel printer port of an IBM PC or compatible system and has a 60M-byte storage capacity. The unit can back up and restore approximately 20M bytes in six or seven minutes, the vendor said.

The 60TX is priced at $989, which includes cable, built-in power supply, one tape and documentation.

• The Xtree Co. in San Luis Obispo, Calif., unveiled a reconfigured version of its disk management software, Xtreemac, developed specifically to run in the Apple Macintosh environment. The software reportedly displays a visual work surface that allows the user to gather and manipulate folders and also enhances the Macintosh's Finder features, according to the company. Xtreemac costs $99.

The company also introduced an upgraded release of Hot, a menu development package for



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Ten years ago, WearGuard was a small store selling work clothes and uniforms in Cambridge, Massachusetts.

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needed the right computer system.

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IBM PCs, Personal System/2s and compatibles. Release 4.1 includes a tutorial, Help screens and a license to distribute as many as 100 menu sets, the vendor said.

Hot is priced at $395.

• Alps America, a division of Alps Electric U.S.A., Inc., announced a faster version of its Allegro 24 dot matrix printer.

Introduced last year, the device reportedly printed 150 char./sec. in draft mode and 50 char./sec. in letter-quality mode. The vendor said the enhanced version offers 27% faster throughput over the original model with an 11% increase in letter-quality throughput speed. The Allegro is available at its original price of $499. The firm is headquartered in San Jose, Calif.

NEW PRODUCTS

Systems

A 12-MHz Intel Corp. 80286-based personal computer is now available from DTK Computer, Inc.

Called the Tech-1260, the zero-wait state IBM Personal Computer AT-compatible system reportedly includes five expansion slots, one parallel and two serial ports. The vendor said on-board space is provided for 1M byte of dynamic random-access memory, which can be configured with a base memory of 384K to 640K bytes. The computer also comes equipped with a hard disk and a floppy disk controller and is priced at $749.

DTK Computer
15711 E. Valley Blvd.
City of Industry, Calif.
91744
818-333-7533

Heath/Zenith Computer Based Instruments has expanded its line of industrial products with the addition of the SWS-4386 Industrial Computer.

The Intel Corp. 80386-based system was designed for high-speed processing in rugged industrial environments, the company said. It reportedly offers 1M byte of standard random-access memory, which is expandable to 16M bytes and runs at 16 MHz with zero-wait states.

The unit's shock-mounted disk drives were developed to withstand shock and vibration, and four fans are included to circulate cool air around system components, according to the vendor.

The SWS-4386 costs $7,500.

Heath/Zenith Computer Based Instruments
P.O. Box 21
St. Joseph, Mich. 49805
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Data storage

RMT Systems, Inc. has expanded its product line with the addition of the RMT2001-F2H2 disk controller for IBM Personal Computer XT and compatible 8-bit computers.

The company said the product will control any combination of two of the following floppy disk drives: 360K-byte 5¼-in. drives; 1.2M-byte 5¼-in. drives; 720K-byte 3½-in. drives; or 1.44M-byte 3½-in. drives. The controller reportedly occupies one expansion slot and supports drives from several manufacturers, such as Sony Corp., Toshiba America, Inc. and Fujitsu America, Inc. It is priced at $195.

RMT Systems
Suite E
18226 McDurmott W.
Irvine, Calif. 92714
714-863-1092

CMS Enhancements, Inc. has introduced three external 5¼-in. 360K-byte floppy drives for use with laptop computers.

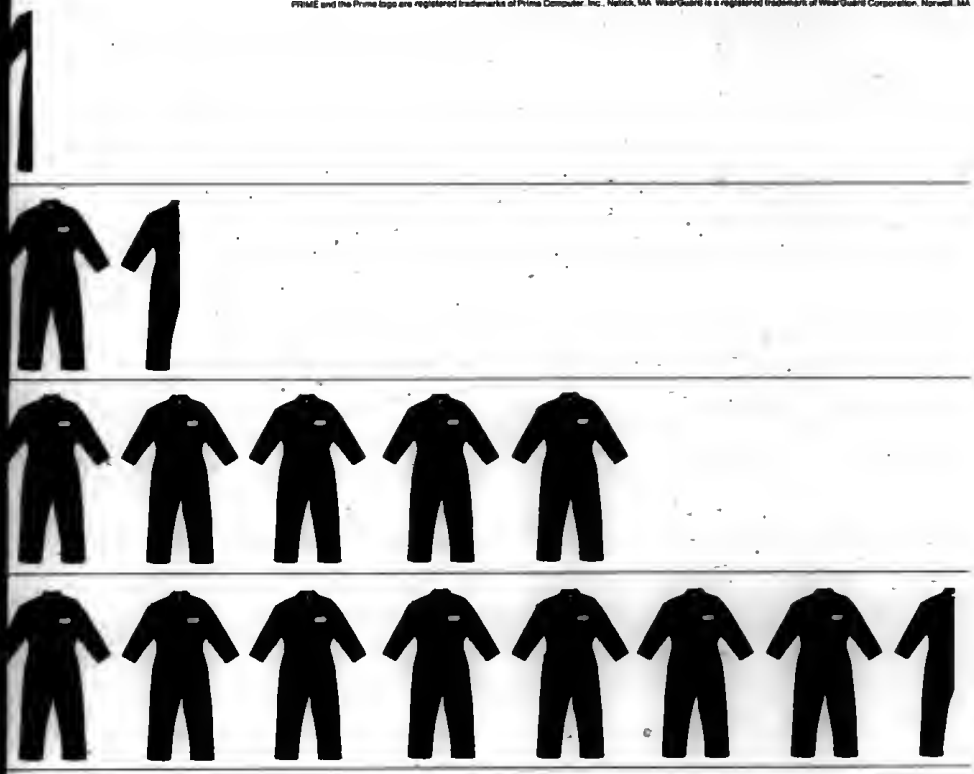
According to the vendor, the Transporter series of floppy disk drive subsystems is available in versions for Toshiba America, Inc., Tandy Corp., Zenith Data Systems and Sharp Electronic Corp. laptop systems.

The drives allow compact portable computers to install software programs from 5¼-in. disks onto their hard drives or onto 3½-in. disks, according to the vendor.

The units are priced at $345.

CMS Enhancements
1372 Valencia Ave.
Tustin, Calif. 92680
714-259-5834

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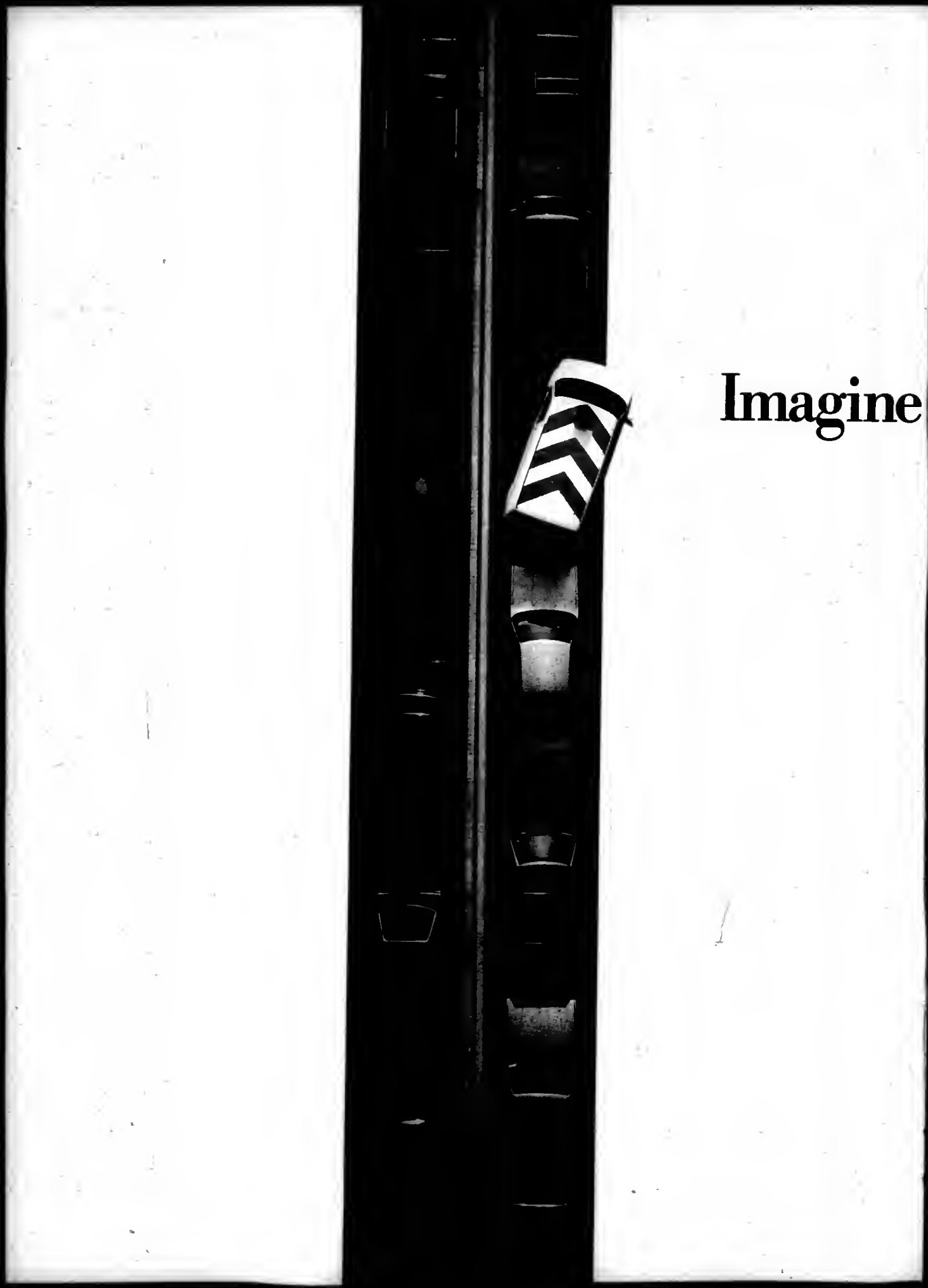
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IBM



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Tallgrass Technologies Corp. has announced a 40M-byte tape backup unit reported to be compatible with most popular laptop computers.

Called Laptape, the product offers 40M to 60M bytes of archived data storage and comes in a small-footprint external cabinet, according to the company.

Features reportedly include menu-driven screens and a selective file backup and modified file backup option.

Laptape costs $795, according to the vendor.

Tallgrass Technologies
11100 W. 82nd St.
Overland Park, Kansas 66214
800-825-4727

A disk copying machine for 5¼- and 3½-in. disks has been introduced by Alf Products, Inc.

Dubbed Quick Copy, the disk duplicator reportedly weighs 12 pounds and is enclosed in a self-contained unit. The product can accommodate disks from IBM, Apple Computer, Inc., Digital Equipment Corp. and several other hardware environments, the company said.

Quick Copy is priced from $1,495, the vendor said.

Alf Products
3940 Youngfield St.
Wheat Ridge, Colo. 80033
800-321-4668

Training

Quires Corp. has released a product designed for business professionals requiring desktop publishing capabilities.

"How to Spec Success and Win Projects" consists of a handbook and set of interactive disks that reportedly offer practical examples of form formatting and editing, cutting and pasting and working with templates and forms. The software is based on Lotus Development Corp.'s Manuscript word processing package.

The product is priced at $25.

Quires
P.O. Box 940
Niwot, Colo. 80544
303-530-2744

American Training International (ATI) has introduced a skill-based training program for OS/2 Standard Edition.

Teach Yourself OS/2 permits students to self-teach their way through the operating system and begin using it within a matter of hours, according to the vendor. The package requires an IBM Personal Computer or compatible with DOS 2.0 or higher and a minimum of 256K bytes of random-access memory. The program is priced at $59.95.

ATI
12638 Beatrice St.
Los Angeles, Calif. 90066
213-823-1129

DSI Micro, Inc. has announced a computer-based training program for users of Ashton-Tate Corp.'a Dbase IV software.

Called Dbase IV: The New Features, the program was designed to give experienced users a quick, illustrated, interactive guide to Dbase IV, the company said. The product reportedly simulates the functions and commands of the software and is priced at $75 per unit. It is available for hard-disk installation only.

DSI Micro
770 Broadway
New York, N.Y. 10003
800-443-7432

Software utilities

Shannon Associates, Inc. has introduced a generic utility program that allows the transformation of any syntactically reducible character-driented file to any other form while retaining the similarity between both, the company said.

Called Metamorphosis, the product reportedly functions as a custom compiler, assembler, macro processor, query language processor, command language processor, graphics language processor and report generator.

Generic Metamorphosis, Fortran IV to C, PL/I (Subset G) to C and CMS-2M to Ada sell for $387, $87, $87 and $134 each, respectively.

The product requires an IBM Personal Computer, PC XT, AT or compatible with a minimum of 416K bytes of random-access memory, the vendor said.

Shannon Associates
P.O. Box 597
Chapel Hill, N.C. 27514
919-929-6863

A software management tool that enables unsophisticated IBM Personal Computer and compatibles to bypass difficult DOS commands has been introduced by Softshell Systems, Inc.

Called Softbreeze, the character-based program incorporates five utilities and a programming language into a single product, according to the vendor. The software reportedly utilizes 30K bytes of random-access memory.

A hard drive or network and MS- or PC-DOS Version 3.0 are required. Single-user versions will cost $129, and network versions will cost $295, effective through June 30. Pricing will be set at $169 and $495, respectively, after that date.

Softshell Systems
1163 Triton Drive
Foster City, Calif. 94404
415-571-9000

An add-in utility designed to enhance the printing capabilities of desktop publishing applications has been released by Atech Software, a division of Ancier Technologies, Inc.

Called Publisher's Powerpak, the program reportedly includes a high-definition

Do they call it a h
it's so hard to find wh



Every DP/MIS manager is concerned with PC productivity and about getting the most out of the systems and software your company already has. But as more data gets stored in PCs, how efficient can users be if they spend most of their time looking for information, rather than using it?

Which is why you should know about Magellan®. The first utility that helps you find and organize your files by letting you

[1]Applications supported in SpeedView include Lotus 1-2-3 Symphony® Manuscript® Agenda® WordPerfect dBase® MultiMate® Microsoft® Word WordStar® DisplayWrite all ASCII files plus many more
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font engine and three outline typefaces for producing scalable fonts from six points to 250 points in Helvetica, Times Roman and Courier-like families. The product runs in conjunction with Xerox Corp.'s Ventura Publisher and is priced at $199.95.

Atech Software
629 S. Rancho Santa Fe Road
San Marcos, Calif. 92069
619-438-6883

EZX Publishing, a unit of EZX Corp., has announced Version 2.2 of its Ez-Forms Executive business forms processing and filing software for IBM Personal Computers, PC XTs, ATs, Personal System/2s and compatible machines.

The latest release features more than 100 user-modifiable form templates for business and personal applications, the vendor said. It requires 640K bytes of random-access memory and a 10M-byte hard disk drive and is priced at $119.

EZX Publishing
P.O. Box 58177
Webster, Texas 77598
713-280-9900

Macintosh products

A series of 3½-in. hard disk drives for Apple Computer, Inc. Macintosh computers has been introduced by Rodime, Inc.

The Cobra series offers a reported 18 msec of speed and is available in 45M-, 70M-, 100M- and 215M-byte configurations.

All Cobra drives have dual small computer systems interface (SCSI) ports that allow daisy-chaining of as many as seven SCSI peripherals, according to the company.

The series can be ordered in both internal and external versions, the vendor said.

The external units range in price from $1,399 for a 45M-byte configuration to $2,549 for the 215M-byte model. Internal device pricing starts at $1,299 for the 45M-byte model and a 215M-byte internal unit is available for $2,449, the vendor said.

Rodime
851 Broken Sound Pkwy. N.W.
Boca Raton, Fla. 33487
407-994-5585

Software applications packages

A portfolio management software package is now available from Savant Corp.

According to the company, The Investor's Portfolio was designed to keep track of investment holdings while calculating items such as current market value, unrealized gain or loss and rate of return. The program runs on IBM Personal Computers, Personal System/2s or compatibles and requires a fixed disk and 640K bytes of random-access memory. The product is priced at $495.

Savant
Suite 250
11211 Katy Freeway
Houston, Texas 77079
800-231-9900

Three microcomputer software packages designed for contingency and disaster recovery planning have been released by Profile Analysis Corp.

Recoverypac was developed for organizations with mainframes and complex data networks, Recoverypac II is targeted at minicomputer sites, and Riskpac is reported to be an expert system that collects and analyzes data. The products are priced at $9,600, $1,450 and $4,000, respectively.

Profile Analysis
454 Main St.
Ridgefield, Conn. 06877
203-431-8720

P11 Enterprises has enhanced its computer animation software program, P11.

According to the vendor, Version 4.80 offers proportional fonts, pixel-based text crawl, image compression and movable picture windows.

The package provides both vector and raster animation and operates on IBM Personal Computers and compatibles. It is priced at $79.95 plus $3.50 for shipping and handling.

P11 Enterprises
P.O. Box 5185
Bridgeport, Conn. 06610
203-366-0258

Suntex National Corp. has annnounced Version 2 of Monte Carlo Plus, a software package designed to work with Lotus Development Corp.'a 1-2-3 spreadsheet as well as 1-2-3 clones.

Monte Carlo simulation is a statistical method used to find the uncertainty in a model's result. The latest release provides more input variables for manipulation, and the representation of results has been expanded to more than 60 tables and graphs, the vendor said. It costs $89.

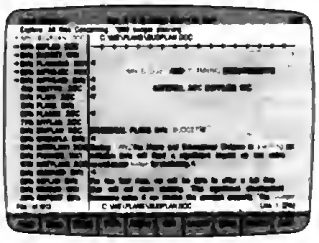
Suntex National
P.O. Box 772868
Houston, Texas 77215
713-783-9059

ard disk because at you're looking for?

see their contents as they appear in your favorite applications. Without even having to load the specific applications that created the file.

Unlike most utilities, Magellan is designed for every level of PC user. Everything you need to run the program is on the screen right in front of you. Which means that there is virtually no learning curve. And from a DP/MIS manager's point of view, Magellan saves you time in end user support.

To find specific information with Magellan, all you need is a general idea of what you're looking for. The Magellan Explore function can perform a search across your hard disk or network on a phrase, a topic, an idea or even an entire file. Not just key words.

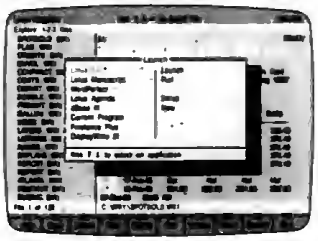


The Magellan Explore and SpeedView functions let you locate everything related to a particular topic and see it as it would appear in its native application

Then it lists your "found" files on the left of your screen in order of how relevant the contents are to the search topic.

As fast as you can scroll down this list, the Magellan SpeedView function instantly shows the entire contents of each file on the right of your screen, highlighting relevant text for you.

Using the information is easiest of all. Because all it takes is one keystroke to launch into the application that created the file, and it will be loaded and ready to go.



With one keystroke, Magellan loads the selected file and application, in this case 1-2-3, so you're ready to go to work

Or you could use Magellan to gather the information you choose from several different applications (like a 1-2-3® spreadsheet and a WordPerfect® memo)' and put it into a single file so you can start using it right away.

Call 1-800-345-1043 for your free Magellan Demo kit. Ask for ALO-3593 to learn more on why Magellan is the quickest, easiest way to access all the information on your hard disk.

Remember, PCs were supposed to make users a lot more productive. With Lotus Magellan, they can be.



Introducing Lotus Magellan

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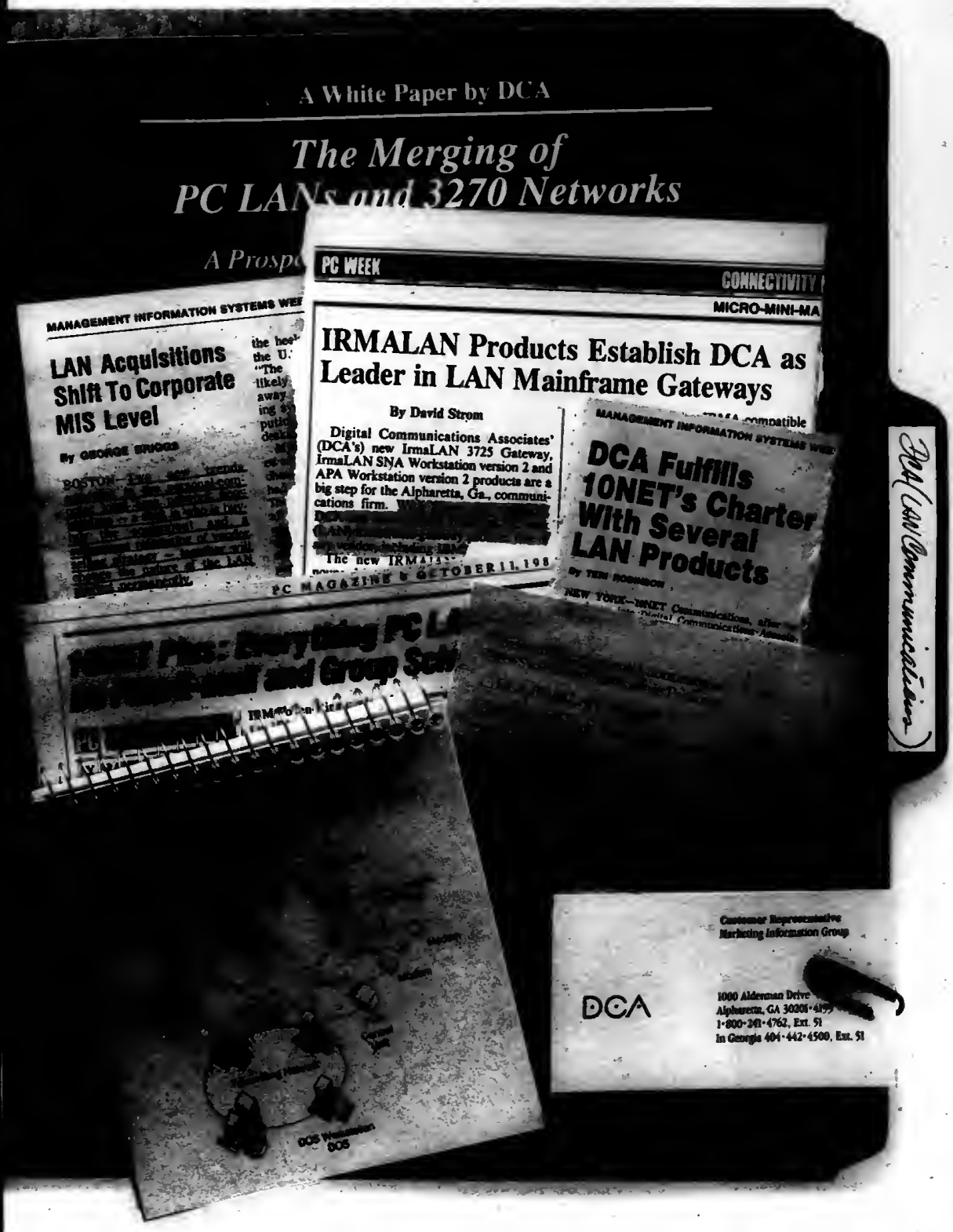
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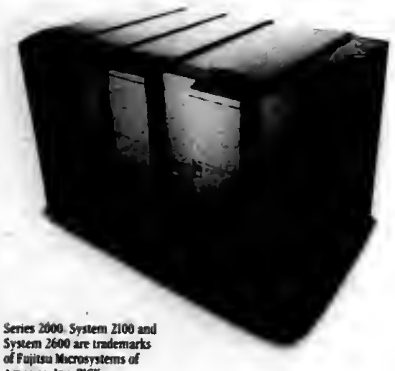
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FUJITSU

Japan's No. 1 computer maker

DATA STREAM

Thomas Nolle

Cooperation, Unix style



First of two parts.

At the February Uniforum show in San Francisco, five vendors — Apollo, DEC, Hewlett-Packard, IBM and Nixdorf — demonstrated how remote procedure calls (RPC) can serve as a means of distributing applications among computers while still retaining Unix's fabled independence.

At the show, a computational application and an interactive game were simultaneously run on computers from all five vendors, using software that is either available now or soon to be.

RPCs benefit programmers by insulating them from the requirement of developing a communications connection. It's a nice to have a common programming interface for communications, such as the one IBM is developing within Systems Application Architecture (SAA) for LU6.2 — and Open Systems Interconnect as well, the vendors claim. Even nicer is not to have any visible communications interaction at all.

The RPC's service-oriented structure suits most distributed applications because access to remote databases or other spe-

Continued on page 62

Shearson weighs ISDN display

ON SITE

BY ELISABETH HORWITT
CW STAFF

NEW YORK — Shearson Lehman Hutton, Inc. is evaluating ICL North America's recently announced OS/2-based Integrated Services Digital Network workstation as a key component of the investment company's ISDN network.

Shearson, which currently has a voice ISDN network, is planning to extend the technology to data applications sometime this spring, according to Shearson Assistant Vice-President David Isherwood.

ICL's ISDN Information Integrator, which is being tested at Shearson right now, has piqued the company's interest in that it "facilitates communications between users. When you're on the phone and want to show someone something, you can do so in a real-time manner," as opposed to getting off the phone in order to send a facsimile or file, Isherwood said.

Shearson has already thought up several applications based on the workstation's ability to support interactive user sessions, including the following:

- Two users structuring a deal can share a spreadsheet, making changes interactively.
- One programmer can show another what happens when a button is pushed, instead of having to describe it over the telephone.
- Support staff can hook up with a user's system to find out what is happening on the screen.

One advantage of using ISDN links for those applications is that the connections can be made "without worrying about physical location or time zone," Isherwood said.

The OS/2 support is not crucial, Isherwood said. "Frankly, we don't care what operating system is used, as long as it provides the functions we want," he said.

Indeed, the system's hefty memory and hardware requirements could become a drawback if Shearson ever decides on wide implementation of the system, Isherwood said. "Having to buy an extra 4M bytes of storage per workstation contradicts the way people look at PCs."

Right now, the investment firm is testing four Information Integrators and a competing product for implementation within conference facilities. Shearson has the potential to use several thousand workstations.

While interested in the system's reported ability to handle multiple simultaneous interactive sessions, Isherwood pointed out that ISDN service providers do not as yet offer the routing capabilities to connect multiple user connections to one screen.

ICL spokesman Ronald Aitchison said Northern Telecom, Inc. is working on this capability for its DMS 100 central office switches and that several private ISDN equipment vendors now support it.

Inside

- FCC's Patrick steps down amid criticism. Page 59.
- HP, Codex center on X.25. Page 63.
- A Comdex bouquet. Page 66.

Developers forging 'network for everyone'

BY J. A. SAVAGE
CW STAFF

BERKELEY, Calif. — This idea could turn the entire nation into couch potatoes. By supporting multicity, multimedia conferencing, it may make travel a leisure option instead of a business requirement.

Two faculty members at the University of California at Berkeley are designing an operating system, which they have called Dash, that will operate across a variety of networks.

Dash will be scalable to different architectures to link everyone in the world. Its developers, aiming for the year 2010, admitted that their concept is futuristic.

Each personal computer could access movies and music from a central library. Dash will allow the PC to answer the phone, display mail and send facsimiles.

In a corporate environment,

Continued on page 61



RENE ZAMIC/REACTOR

Globalization spins on telecom axis

BY ALAN J. RYAN
CW STAFF

NEW YORK — As corporations continue to see greater competition coming from abroad, they should look to telecommunications as a tool in their globalization efforts.

"Technology is paving the way for globalization to take place, and telecommunications provides the infrastructure for it all," explained William C. McGowan, chairman of MCI Communications Corp.

McGowan made his comments while keynoting the Information Industry Association's recent "Art of Marketing with Information" conference in New York.

Increased globalization also means increased competition and an economic challenge, McGowan said. "There are no domestic markets anymore," he said.

Transformations

McGowan predicted that the way in which telecommunications has transformed banking — more than $1 trillion is transferred electronically around the world daily — will begin to transform other industries as well.

Successful end-user companies in the years ahead will be those that are able to combine "business and telecommunication imagination and knowledge with technical realism," McGowan said.

He cited two companies that have seen this vision turn to success: American Airlines, when it introduced the Sabre computer reservation system that enabled it to become an industry giant; and the Home Shopping Network, which created an information-intensive industry where none existed before.



MCI's McGowan: *"There are no domestic markets anymore"*

McGowan also predicted that prices on telecommunications equipment will continue to drop for at least the next two to three years, making it easier for users to adopt these tools.

He pointed to a drop of more than 40% in pure long-distance rate pricing and a reduction in communications costs in general over the last five years.

As these costs begin to level off, customers will continue to see increases in value for their dollar, he predicted.

The added value will come in the form of a greater number of customized services as well as faster service due to increased bandwidth and improved digitization.

Other trends to watch, according to McGowan, include the following:

- Nonvoice communications such as electronic mail and electronic data interchange services will grow faster than voice communications.
- International communications will continue to grow rapidly, outpacing U.S. communications growth.
- Today, 15% of corporate executives get their information electronically. By the year 2,000, nearly all will.
- Telecommunications rates will become more standardized, similar to the rate system of the U.S. Postal Service.
- End users will continue to demand greater control over their corporate networks, and telecommunications services to such customers will grow more rapidly than services to executives.

The Best CASE Tools.



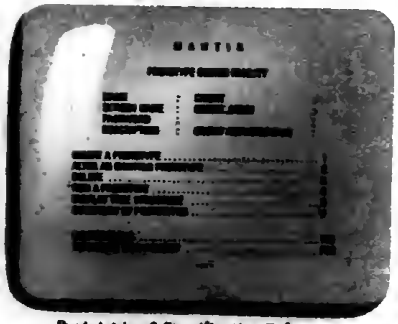
Project Planning



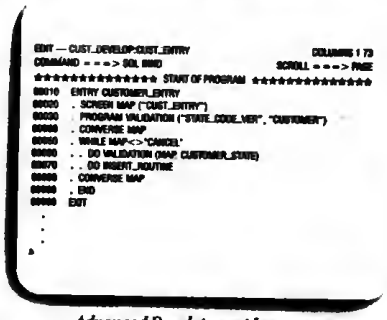
Interactive Design Features



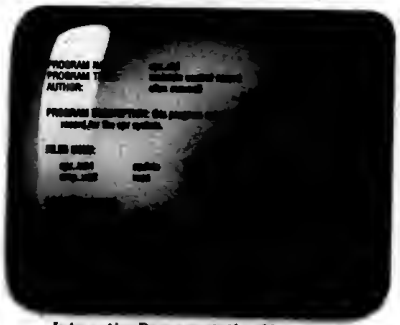
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Critics pan Patrick's FCC reign

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Business network managers view the two-year reign of Dennis R. Patrick as chairman of the Federal Communications Commission as one filled with misplaced priorities, according to the International Communications Association.

Commenting on Patrick's recent announcement that he will resign, ICA Washington Counsel Brian R. Moir said business users found it frustrating that Patrick focused on creating the price caps regulatory scheme for dominant carriers instead of fixing tariffs that users believe are grossly inflated.

"Rather than dealing with present and real concerns — such as the 'strategic pricing' rates paid by business users every day — the commission leadership devoted its limited resources to reinventing the wheel," Moir said.



FCC's Patrick

Patrick, a 37-year-old Republican lawyer from Los Angeles, said his major accomplishments as chairman included approval of the price caps regulation for AT&T's long-distance rates and the Open Network Architecture (ONA) plans for regional holding companies.

The ICA and other business network associations have argued that both regulations are flawed. For example, they claimed the price caps order allows AT&T to engage in strategic pricing of private-line rates [CW, March 20] and that the ONA order fails to unbundle transport and switched services.

Patrick, who says he is anxious to return to the private sector after more than five years at the FCC, stressed that the resignation was "my decision and my decision alone."

However, FCC watcher Alan Pearce, president of Information Age Economics, Inc. in Bethesda, Md., said Patrick stepped down because he was aware that the Bush administration wants to improve the FCC's battered relations with Congress.

Patrick's work st the FCC was sharply criticized by key legislators such as Sen. Ernest F. Hollings (D-S.C.) over broadcasting issues and price caps. Last year, Hollings was so angered by Patrick's efforts at deregulation that the committee chairman refused to consider nominations for two open seats on the commission.

"Dennis Patrick realizes he can't stay because of his poor relations with Capitol Hill," Pearce said. The resignation leaves three vacancies on the five-seat commission. Industry analysts said the leading candidates for nomination to the FCC are Washington attorneys James Smith, Sherrie Marshall and Susan Wing, as well as Andrew C. Barrett, s member of the Illinois Commerce Commission.

Meanwhile, Alfred C. Sikes, the outgoing administrator of the National Telecommunications and Information Administration, is actively campaigning for the job of FCC chairman.

George R. Dellinger, a telecommunications analyst at Washington Analysis Corp., noted that all of the candidates "have some background in communications and are not simply political cronies."

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OSI stacks to ease migration

BY PATRICIA KEEFE
CW STAFF

Recent product debuts from two major suppliers of Open Systems Interconnect (OSI) software — Retix Corp. and Touch Communications, Inc. — are said to bring their protocol stacks in line with MAP/TOP Version 3.0.

While both vendors claim to offer the full seven-layer Manufacturing Automation Protocol/Technical and Office Protocol (MAP/TOP) suite, the two introductions took different tacks.

Santa Monica, Calif.-based Retix unwrapped s feature that one might expect from OSI software — the ability to access a variety of host computers, regardless of the type or location, without the aid of multiple protocol emulations.

> "EVERY SYSTEMS integrator and computer vendor in the world will need [Retix's] products in order to bid in major projects."
>
> BRUCE RICHARDSON
> ADVANCED MANUFACTURING RESEARCH

Virtual Terminal Protocol (VTP) provides a common protocol for remote terminal access. This would enable a user to edit programs on a local personal computer, transfer the program to a mini using FTAM and then run the program on s remote host using VTP.

Industry observers cited one other VTP supplier — 3Com Corp.'s Enterprise Systems Division (ESD). During its time as Bridge Communications, Inc., ESD introduced two OSI servers that support VTP. Although Retix is an OEM supplier, the announcement whetted the appetite of at least one OSI user, who said much of his software contains Retix protocols.

"I'm ready to receive it," said David Judson, technical director of the Integration Technical Division within the Manufacturing Technologies Directorate of the U.S. Air Force's Wright Research Center. "I'll get it through my vendor and cause [it] to do the job. I can't afford to wait" for the results of a general port. Judson said he is looking forward to having a virtual terminal in the presentation layer, which will help provide s better interface to user applications.

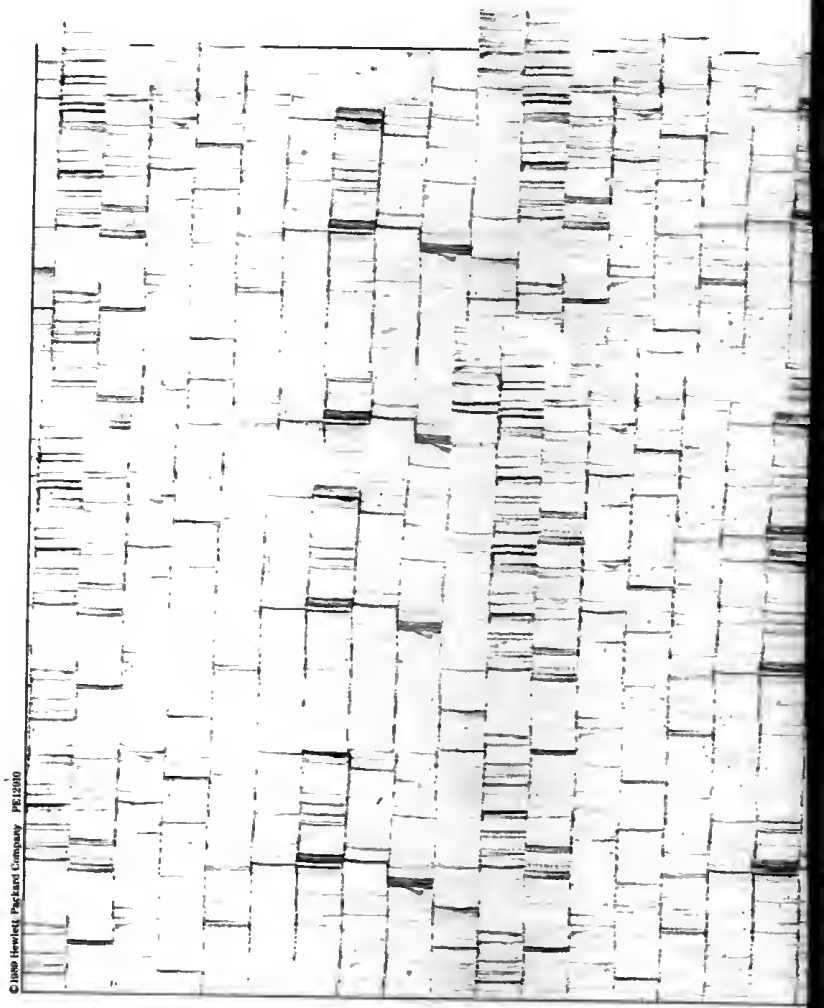
Retix is positioning itself as s single-source supplier for all MAP/TOP protocols. including FTAM, network management, X.400 messaging services and X.500 directory service.

According to Bruce Richardson, an analyst at Boston-based Advanced Manufacturing Research, Inc., if VTP is included in the Government OSI Profile (GOSIP) specifications, Retix will then be sitting pretty given that GOSIP procurements start soon.

"They'll be in an extremely hot position. Every systems integrator and computer vendor in the world will need [Retix's] products in order to bid on major projects," he explained.

Touch, located in Campbell, Calif., also hopes to catch OEM attention. Its Fastport-OSI is billed as a ready-to-use GOSIP- and MAP/TOP 3.0-compliant tool that eases and speeds implementation of the OSI protocols.

In addition to the seven layers, Fastport-OSI reportedly supports network functions such as filing, printing, terminal access, security and programming interfaces. Touchexec insulates the OSI stack from the target operating system, easing integration. Initial product support is extended to AT&T's Unix System V, Release 3; Intel Corp.'s 80386 processor; Motorola, Inc.'s 68000 processor; and the TLI Transport mechanism.



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Worldwide

FROM PAGE 57

it might obviate much business travel with multimedia conferencing — the Picturephone of cartoon character George Jetson's generation on a conference call. In financial services, stock traders would pay a premium on the network for a guaranteed maximum millisecond delay of information reception no matter what the traffic on the network may be.

Professors David Anderson and Domenico Ferrari said Dash is a very large distributed system with particular attention to low-level mechanisms such as naming, virtual memory, process control and network communication.

"Instead of transferring files, it will transfer digitized video and voice," Anderson said. "TCP/IP is no good for this. Internet is no good. Dash is our suggestion of how it may work."

> "WE'RE NOT TRYING to produce a replacement for Unix, although that might happen as a by-product of the project."
>
> DOMENICO FERRARI
> UNIVERSITY OF CALIFORNIA

The idea is not just to download information and entertainment but to be able to interact with it in real time. "When you're watching the news on TV, you can have feedback," Anderson said, although, he added, this technology will eliminate the need for a television.

Ferrari does not see Dash, as it currently exists, being used across the board in 2010. "We're not trying to produce a replacement for Unix, although that might happen as a by-product of the project. I think there will be machines running something called Unix that will be totally different [from Unix today] which will incorporate some ideas from Dash," Ferrari said. "The same probably holds for Mach [The Unix-based Carnegie-Mellon University project] and OS/2."

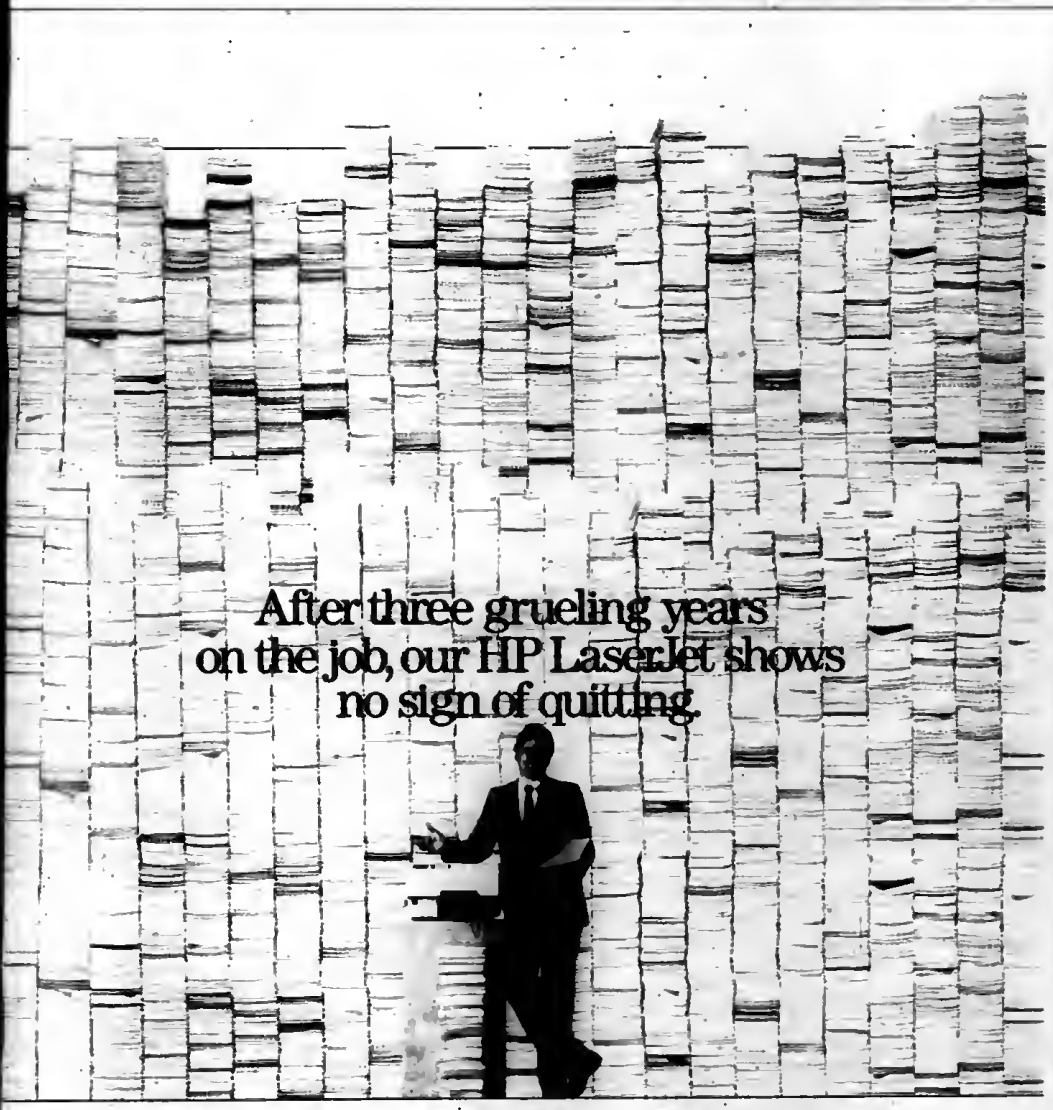
Unlike Unix, which has to be licensed from AT&T, Ferrari intends Dash software to be totally in the public domain, engendering a truly "open" system.

Several companies, including Japanese firms, have shown an interest in the project through their monetary support. "They don't think about 2010. They think about the next quarter, but they are intent on keeping in touch with the future," Ferrari said. AT&T and its Japanese counterpart NTT are interested in Dash's real-time networks, according to Ferrari.

The researchers expect to have a working Dash system by 1993 for an everyday environment. "I'll throw away my phone," Anderson said. But a necessary preliminary is a high-speed network for the applications, he added. Broadband Integrated Services Digital Network, a still-embryonic version of the telecommunications standard that could support up to 100M bit/sec., is one possibility, but it will probably not be the first implementation, he said.

Dash technology will not usurp another emerging technology, high-definition television (HDTV). In fact, Anderson said that HDTV technology will be necessary for interactive video: "HDTV's raw bits would need a vast bandwidth. We're now working on [digitised video] compression."

The tough part of the project will be getting a society of potential users to throw out equipment and acquire new hardware that can be integrated into the network. One might not need a television, but another investment will have to be made in compatible video, sound and terminal products.



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HEWLETT PACKARD

Nolle

FROM PAGE 57

cial resources is often the critical requirement in such systems.

This trend away from centralized host computing to distributed applications has overtaken even IBM. The vendor is now working on specifications within SAA for distributing applications across a network of computer systems.

The classical view of distributed processing is that users write programs containing explicit communications commands that link their programs into broad distributed applications.

Each program element may be able to run in one or more systems, but the boundaries of the elements are relatively fixed because the programs must be designed with explicit commands to "establish a session" or "send data."

FOR THOSE accustomed to looking at SAA's planning horizons out into the middle 1990s, RPC almost seems a quiet revolution.

In the Unix world, a different strategy has evolved. Having grown up in a networked environment, Unix demanded portability from applications from the start.

Hence the Unix solution includes peer communications facilities similar to those of IBM's SAA platform while adding another dimension with the RPC concept. For those accustomed to looking at SAA's planning horizons out into the middle 1990s, RPC almost seems a quiet revolution.

Actually, RPCs have been around for years, and the underlying concept is simple. Unix programs are often written in C, and these are divided into smaller modules called "procedures."

These procedures are often used to supply some kind of service to the rest of the program such as "read a file" or "perform a calculation." When discussions arose at several vendor development locations on how to distribute services such as file access through a network of Unix systems, RPC was the natural strategy.

Normalcy

In a normal C program, a procedure is executed by "calling" it and passing parameters to it that represent data and provide instructions on what to do. RPCs simply link the procedure call and the point at which it executes through a communications facility.

The user of the service, or "caller" of the RPC, executes what appears to be a normal C procedure, but the information that would normally pass to another module in the same program is instead sent over a communications circuit (typically, but not necessarily, a local-area network) to the server system where the RPC actually resides.

There, the RPC is executed, and its results are returned via the same circuit to the caller. The returned results can be a record, a computation, a credit authorization or any other information element.

RPCs developed primarily in a Unix environment, where the C language still dominates, but the concept is not limited to C or even to a single language.

RPC strategies can be employed with nearly any language in which modular procedures and parameter-passing are employed such as Modula-2, Pascal and Ada, as well as object-oriented languages such as Smalltalk.

A vendor with a completely full suite of RPC-supporting languages can provide a platform for development of nearly all commercial and scientific applications in distributed mode without requiring communications training for application programmers.

Nolle is president of CIMI Corp., a communications consulting company based in Haddonfield, N.J.

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Hewlett-Packard, Codex announce X.25 products

BY ELISABETH HORWITT
CW STAFF

Aiming to better their strategic positions for selling turnkey global network backbones, Hewlett-Packard Co. and Codex Corp. both made major announcements in the X.25 packet-switch arena recently.

Codex, a Motorola, Inc. subsidiary, announced high-end and low-end X.25 products that can interoperate with existing circuit-switching equipment and with the vendor's network management system.

HP announced a bevy of packet-switching products as well as programs to support T1 switches from Network Equipment Technologies, Inc., Digital Communications Associates, Inc. and Timeplex, Inc.

Both companies stand to boost their presence in the increasingly strategic global backbone networking market through their announcements, said Jeremy Frank, a program director of enterprise network strategies at Gartner Group, Inc., in Stamford, Conn. Major firms such as IBM, AT&T, GE Information Services and Computer Sciences Corp. are "all used to playing the turnkey global networking game," Frank said. To join in, HP and Codex will have to further integrate circuit- and packet-switched solutions in terms of both technology and support organizations, he indicated.

HP has agreed to support other vendors' T1 switches but has not yet announced intentions to sell those products as an integrated part of its product line. Despite some success selling turnkey networks overseas, HP has not made comparable inroads among the U.S. Fortune 500, Frank added.

Time to reorganize

Codex, which offers both packet- and circuit-switched products, needs to reorganize to market and support integrated circuit- and packet-switched systems effectively, Frank said. The vendor has announced U.S. availability for its high-end 6600 Series Packet Network. Products range from eight ports to more than 500 ports per switch, with a capacity of up to 2,000 packet/sec. Pricing ranges from $100,000 to $250,000.

Codex also announced the 6525 X.25 Packet Switch and 6506 Packet Assembler/Disassembler (PAD), both aimed at the entry-level market. The switch supports up to 48 ports, with prices ranging from $4,345 to $37,000. PAD pricing begins at $1,995.

New and old X.25 products will interoperate with each other and with Codex's Muxport statistical multiplexers, the vendor said. The new X.25 products reportedly can be managed by Codex's 9300 and 9800 Network Management Systems.

HP announced several additions and enhancements to its Private Packet Network family of X.25 products, including the following:

- The ability for HP X.25 networks to be managed by an MS-DOS workstation using the HP Openview user interface. Openview is HP's network management platform, which is said to be based on Open Systems Interconnect protocols.
- A low-end switch based on the IBM Personal Computer that is designed to act as a cost-effective "feeder" device connecting smaller sites into the X.25 backbone network. Prices range from $8,000 to $17,000. Availability is scheduled for the second half of this year.
- The HP 2335A, which replaces the existing HP2344A X.25 multiplexer, is said to offer a hardware reliability improvement of 66% at 19% less cost.
- Remote device control software for developing customized screens for managing non-HP devices on an HP X.25 network. Using the software, HP's support center reportedly can develop an application for one type of device in six to eight weeks.



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*Datapro, *User Ratings of Network Management Systems*, September, 1988.
**International Data Corporation (IDC), *Quantitative Analysis of the Network Management Market*, October, 1988.

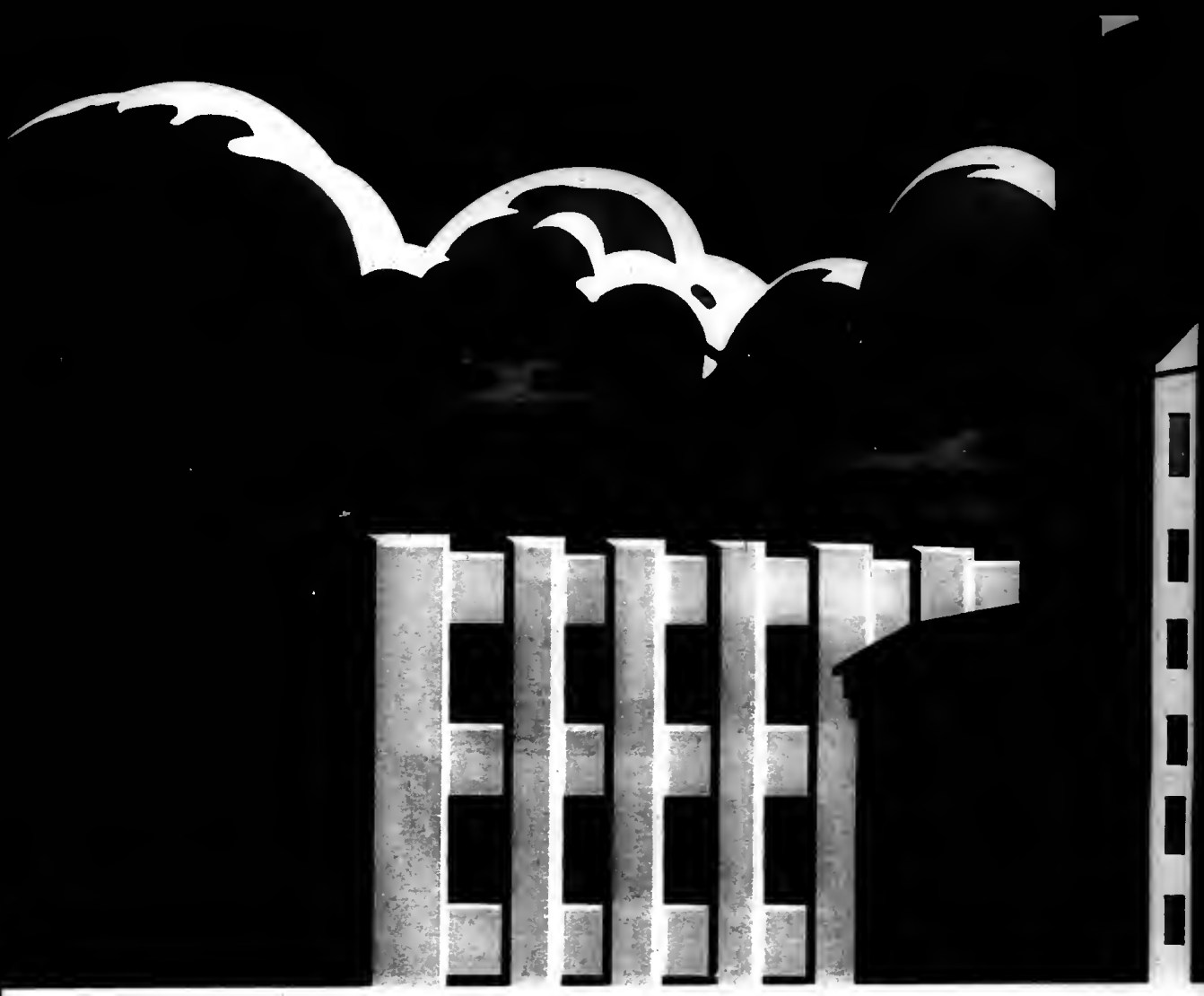
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NEW AT COMDEX/SPRING '89

The following products were announced last week at Comdex/Spring '89:

• Gateway Communications, Inc. in Irvine, Calif., introduced a 64K bit/sec. bridge said to combine Novell, Inc.'s Netware IPX protocol with the CCITT X.25 protocol to provide transparent bridging between Netware-based local-area networks.

According to the company, the G/Remote Bridge 64 consists of a WNIM-186 hardware adapter and X.25 bridging software program.

The product will allow users to bridge over an RS-232 or V.35 interface with as many as 128 virtual circuits per port. The G/Remote Bridge 64 starter kit is priced at $4,495, and the Link version is available for $2,495.

• The Pocket Ethernet Adapter for laptop personal computer users was announced by Xircom in Los Angeles.

The adapter connects to the parallel printer port of a PC to facilitate connectivity to an Ethernet LAN, the vendor said.

Two models are reportedly available — one for thin Ethernet applications and one for external applications such as thick and twisted-pair Ethernet. Both models mount externally and are priced at $695 each.

NEW PRODUCTS

Links

Data General Corp. recently announced software products designed to increase the viability of its hosts as network servers for IBM Personal Computers and Personal System/2s.

DG/Infact is said to be a cooperative processing package that allows PC users to access host data without needing to know query languages, target database structure or location. Co-developed with Apple Computer, Inc. subsidiary Network Innovations Corp., the package provides a menu-driven interface similar to Lotus Development Corp.'s 1-2-3.

The product supports DG's Infos II, Interactive Cobol ISAM, DG/SQL and AOS/VS sequential files residing on MV hosts, DG said.

Users can combine up to six DG/SQL tables or join up to six files from different database environments, DG said. Available now, pricing for the package ranges from $3,875 to $35,000, depending on CPU.

DG also announced controllers that are said to integrate IBM PS/2 Models 50, 60, 70 and 80 on a DG/Personal Computer Integration (PCI) Starlan or Ethernet network, the company said.

In addition, DG announced PS/2 support and improved memory management for the DG/PCI software family, which is said to provide MS-DOS workstations with connections to other PCs and to DG hosts running the Comprehensive Office Executive office automation package.

DG also said that it would support the IEEE 802.5 Token-Ring standard at an undisclosed future date.

Data General
3400 Computer Drive
Westboro, Mass.
508-898-4051

Local-area networking hardware

A high-performance Token-Ring network adapter has been announced by Western Digital Corp.

The Western Digital Tokencard attaches IBM Personal Computers and compatibles to Token-Ring local-area networks and is fully interoperable with IBM's Token-Ring network products, the company said. The product can link up to 260 stations in a single ring and operates at 4M bit/sec.

The adapter comes in two versions: the Tokencard WS for use in Token-Ring workstations and Tokencard for use in Token-Ring network servers. The products are priced at $499 and $599, respectively.

Western Digital
2445 McCabe Way
Irvine, Calif. 92714
714-863-0102

Modems/multiplexers

Telematics International, Inc. has introduced fractional T1 networking software for its Digital Wideband Exchange (Dx) product line of time division multiplexers. According to the company, the software program will support as many as seven fractional bundles within a T1 access line.

The fractional T1 service capabilities of the Dx products were designed to allow network users to take advantage of new partial T1 (1.54M bit/sec.) or European E1 (2.05M bit/sec.) tariffs, the vendor said.

The fractional T1 upgrade for existing Dx users sells for $3,300 and is scheduled for delivery this month. The Dx-50 is priced from $16,000 to $75,000, and the Dx-500 ranges from $20,000 to $150,000. Pricing is dependent on system configuration and includes the fractional T1 software package.

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MANAGER'S JOURNAL

EXECUTIVE TRACK



John T. Blank has been appointed director of the **Internal Revenue Service's** newly created telecommunications division in Washington, D.C. He will develop and execute the IRS' telecom program comprising voice, video, facsimile and data.

The 53-year-old Blank had been director of the IRS facilities management division since 1985. Before that, he was director of the planning and analysis division for three years.

Blank's 30-year IRS career includes positions in Washington, Philadelphia, Atlanta and Toledo, Ohio. He holds a bachelor's degree from the University of Akron in Ohio.

.....

Bill Sanscrainte has joined **Pepper Construction Co.** in Chicago as director of information systems. He will be responsible for the company's computer operations and development.

Sanscrainte came to The Pepper Companies, Inc. subsidiary from Kraft, Inc., where he served in several key information systems positions, including business systems manager and senior manager of strategic support systems.

.....

Scott Gross has been appointed director of central operations at **Thrifty Car Rental's Welcome Corp.** in Alexandria, Va. Gross is responsible for computer and telephone systems and Welcome's new reservations center. His residence is in Sterling, Va.

.....

Who's on the go?

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Setting an IS standard

Biddle, a quiet aggressor at American Standard, takes an active technology stance

BY CLINTON WILDER
CW STAFF

Gary Biddle is one of the deep thinkers of the IS profession. His quiet midtown Manhattan office has the feel of a small library, and the writings of Peter Drucker, Michael Porter and Alvin Toffler occupy both his coffee table and his conversation.

But things have been far from placid at American Standard, Inc., where Biddle is corporate vice-president of management information services. Last year, the $3.7 billion manufacturing conglomerate successfully fought off a hostile takeover attempt by Black & Decker, Inc. by taking itself private in a leveraged buyout. In a few turbulent months, Biddle, a career American Standard employee, went from contemplating a potential departure to becoming a management owner of a debt-saddled company.

He is able to philosophize about that, too. "Most people will not make change occur when things are going well," he says. "There's a question whether you need a threat to transform a company. How many have done it without being forced to by a crisis?"

According to colleagues and consultants, Biddle is one who has done so, at least within his IS group. "He's succeeded in elevating himself and the [IS] function within American Standard," says John Severson, vice-president of IS for U.S. sales and distribution at St. Louis-based Trane Co., which American Standard acquired in 1984.

"In a lot of organizations," Severson continues, "IS still reports through a financial structure and is not given the kind of strategic emphasis that's important to the business. Gary has in his mind visions of how you can use IS to help the business. He tends to look at things fairly strategically and relate that vision upwards to the executive ranks."

Like an increasing number of lead

Continued on page 68

PROFILE: Gary Biddle



JOE BRUCE

Position: *Corporate vice-president of MIS, American Standard, Inc.*
Mission: *To run IS in such a way to help reduce debt incurred from takeover defense*

Seasoning restaurants, hotels with PCs

BY ALAN J. RYAN
CW STAFF

ITHACA, N.Y. — Gourmet food and hotel suites: The terms might not conjure up images of computers, but in time they will at Cornell University's School of Hotel Administration.

Late last month, the school and IBM's University and College Systems organization announced a joint research project to study new ways to use computer technology in the hotel and restaurant management industry and in the education of students who are planning to enter the hospitality industry.



The three-year research partnership will focus on developing new teaching technologies and operational applications, as well as on strategic planning and research. IBM's contribution to the project consists of $1 million in IBM Personal System/2 hardware and software.

The agreement provides for the installation of 58 PS/2 Model 50, 70 and 80 computers at a variety of locations throughout the School of Hotel Administration and in the on-campus Statler Hotel and J. Willard Marriott Executive Education Center.

Many of the computers will be linked together using a Token-Ring local-area network and IBM midrange systems.

Associate Professor Richard G. Moore, Cornell's project coordinator, said the students and faculty will use the hardware to "explore ways to automate all parts of this industry." That will include evaluating how the computers can be used to integrate all departments of a hotel operation through the use of a computer network.

The research will also concentrate on collecting hotel information from both front- and back-office operations, guest services and food and beverage service.

It will focus on integrating information from the on-campus hotel's operational areas into one database for common analysis and simulating the operation of different areas of the hospitality industry — including shelters, institutions and health care facilities — for teaching and analysis.

Biddle

CONTINUED FROM PAGE 67

ing IS executives, Biddle's elevation within the company has physically removed him from most of the computing. Biddle's IS staff at corporate headquarters in New York numbers only eight. Virtually all applications except basic financial programs are developed and run at American Standard's business units, which manufacture building fixtures, transportation systems and air-conditioning products around the world.

Biddle's role "is more as an educator or consulting service, someone you might draw on for assistance," Severson says. "Quite frankly, our executives use him that way, too."

Biddle's understanding of the business side of American Standard makes sense because that is where he started when he was 18 years old. He spent six years in manufacturing in his native Ohio and in New York, where in 1973, he faced the choice of moving to marketing or data processing.

"I decided on DP because I figured I could always go back to marketing," he says with a twinkle in the eyes behind his wire-rimmed glasses. "I'm glad I did." Biddle, 50, never did go back to marketing but says he feels closer than ever to the business side since the takeover battle.

> "I DECIDED on DP because I figured I could always go back to marketing. I'm glad I did."
>
> GARY BIDDLE
> AMERICAN STANDARD

"Now we're all in this for the same thing — to pay off the debt," he says. "And we all have a stake in it. We have to decide between spending $1 million for a computer or a five-axle machine on the shop floor. You look at things you never did before. Life is different."

Biddle's hard look at IS costs has resulted in outsourcing of CPU cycles to third-party service bureaus. American Standard closed a New Jersey data center late last year to use the processing capacity of Pittsburgh-based Genix Corp. Some of American Standard's business units, including Trane, have followed a similar path with other vendors. With the number of corporate takeovers and management buyouts, Biddle says this will be a growing trend.

"There's a tremendous amount of debt out there, and something will have to give somewhere," he says.

Black & Decker's hostile bid for American Standard created more uncertainty than fear for Biddle. He was confident that the decentralized IS infrastructure he built for 15 years would not be dismantled, even if he had elected to move on after a successful takeover.

"I felt we had put IS on the leading edge," he says. "If the new company didn't view it that way, then it wasn't the right company to work for anyway. Most CIOs who left their companies after an acquisition did so because the management style of the company was different."

Biddle admits that he fits the part of senior executive out of the office, where he says "95% of what I do is work-related." He enjoys promoting the IS function outside the company and is in demand as a conference speaker. But he still finds room in his schedule for skiing, golf and time with his family at his suburban New Jersey home.

Biddle's high profile has not gone unnoticed outside American Standard. "He's one of the foremost IS executives who have really grasped the idea that they have to be more politically astute and communicate with senior line management on a peer level," says Anthony DiRomualdo, associate director at management consultancy The Diebold Group, Inc. in New York. "You have to take a proactive approach to frame the technology in business terms, and he has."

OF SPECIAL INTEREST

"Information Systems in Transition" will be the topic of a full-day conference to be held at Babson College in Wellesley, Mass., May 11.

The conference is targeted at information systems management and corporate line managers involved in the use of information technology in their respective areas. Those attending the conference will be able to compare their views on future trends and the challenges in information technology management with those of systems executives from 40 leading European corporations.

Speakers will include Chris Demos at Federal Express Corp., Diane Wilson at the Sloan School of Management at MIT and J. Anthony Brewer at the Butler Cox Foundation in the UK. Topics include "Megatrends for the '90s," "The Future for Strategic or Competitive Advantage Systems," "The Impact of Globalization on Systems Management" and "What Companies must do to Exploit Investments in Information Technology in the '90s."

For more information, contact Jerry Kanter, the Center for Information Studies, Babson College, Wellesley, Mass. 02157.



CALENDAR

APRIL 23-29

Second Annual SUPER! (Supercomputing by University People for Education and Research) Conference. Lexington, Ky., April 23-26 — Contact: John Connolly, Center for Computational Sciences, University of Kentucky, Lexington, Ky. 40506.

Common's Spring '89 Conference. New Orleans, April 23-27 — Contact: Common Headquarters, 111 E. Wacker Drive, Chicago, Ill. 60601.

Computer-Aided Software Engineering Symposium. Boston, April 24-26 — Contact: Digital Consulting, 6 Windsor St., Andover, Mass. 01810.

Manufacturing Principles & Practices Seminar. Chicago, April 24-26 — Contact: American Production and Inventory Control Society, 500 West Annandale Rd., Falls Church, Va. 22046-4274.

9th Annual Spring Conference, Disaster Recovery and Computer Security. Marco Island, Fla., April 24-26 — Contact: Pat Watkins, Suite 100, 94 N. High St., Dublin, Ohio 43017.

AMS '89. Chicago, April 24-27 — Contact: Cahners Exposition Group, Cahners Plaza, P.O. Box 5060, 1350 East Touhy Ave., Des Plaines, Ill. 60017-5060.

Spring National Design Engineering Show and Conference. Chicago, April 24-27 — Contact: Show Manager, Spring National Design Engineering Show, 999 Summer St., Stamford, Conn. 06905.

IEEE Infocom '89: The Conference on Computer Communications. Ottawa, April 24-27 — Contact: Celia Desmond, Telecom Canada, 5th floor, South Tower, 438 Bay St., Toronto, Ont., Canada M5G 2E1.

CITEX, the Computer Industry Trade Exposition. Atlanta, April 25-27 — Contact: Citex, P.O. Box 1432, Englewood Cliffs, N.J. 07632.

Federal Computer Conference West. Defense and Government Computer Graphics Conference West. Anaheim, Calif., April 25-28 — Contact: National Council for Education on Information Strategies, P.O. Box 41045, 901 West, 7315 Wisconsin Ave., Bethesda, Md. 20814.

Mobile Information System Standards. Atlanta, April 26 — Contact: Geostar Corporation, Suite 500, 1001 22nd St., N.W., Washington, D.C. 20037.

World Electronics Conference. London, England, April 26-27 — Contact: Financial Times Conference Organization, 126 Jermyn St., London SW1Y 4UJ.

Decision Support and Executive Information Systems: A Managerial Perspective. Cambridge, Mass., April 26-27 — Contact: Decision Support Technology, 51 Church St., Boston, Mass. 02116.

IBM MVS I/O Configuration Management Seminar. Washington, D.C., April 26-28 — Contact: Technology Transfer Institute, 741 Tenth St., Santa Monica, Calif. 90402.

Novell System Manager Workshop. Boston, April 26-28 — Contact: Computer Tutor Corp., One Newton Executive Park, Newton Lower Falls, Mass. 02162.

Storage Track '89, Computer Storage Industry Conference. Santa Clara, Calif., April 26-28 — Contact: Datapoint, Conference Department, 1290 Ridder Park Drive, San Jose, Calif. 95131-2398.

Costing and Chargeback Workshop. Washington, D.C., April 26-28 — Contact: The Institute for Information Management, P.O. Box 361566, Milpitas, Calif. 95035.

Macworld Exposition. Washington D.C., April 26-28 — Contact: Mitch Hall Associates, P.O. Box 155, 1260 East St., Westwood, Mass. 02090.

Executive Uniforum: Charting the Course of Unix into the Commercial Arena. Santa Barbara, Calif., April 26-28 — Contact: Patricia Seybold's Office Computing Group, Suite 612, 148 State St., Boston, Mass. 02109.

Interactive Forum on Customer Contact Systems. Scottsdale, Ariz., April 27-28 — Contact: Theresa Lim, 133 Peachtree St., N.E., Atlanta, Ga. 30303.

Software Strategies for IBM Users. Hilton Head, S.C., April 27-28 — Contact: Digital Consulting, 6 Windsor St., Andover, Mass. 01810.

APRIL 30-MAY 6

CHI '89 Conference on Human Factors in Computing Systems. Austin, Texas, April 30-May 4 — Contact: CHI '89, Executive Administrator, Claudia Ross, P.O. Box 200195, Austin, Texas 78720.

Communications Association Conference and Exposition International. Dallas, April 30-May 5 — Contact: International Communications Association, Suite 710, 12750 Merit Drive, LB-89, Dallas, Texas 75251.

International Conference on Supercomputing and Third World Supercomputer Exhibition. Santa Clara, Calif. April 30-May 5 — Contact: International Supercomputing Institute, Suite B309, 3400 34th St. South, St. Petersburg, Fla. 33711.

Internet Requirements Seminar. Monterey, Calif., May 1-2 — Contact: Advanced Computing Environments, Suite 100, 480 San Antonio Road, Mountain View, Calif. 94040.

Unix Transaction Processing Workshop. Pittsburgh, May 1-3 — Contact: Usenix Conference Office, P.O. Box 385, 16951 Pacific Coast Hwy., Sunset Beach, Calif. 90742.

Computer Virus Conference & Exhibition. Chicago, May 1-3 — Contact: Ida Pisanelli, Computer Security Institute, 360 Church St., Northboro, Mass. 01532.

The Executive Forum on Information Systems Management. New York, May 1-3 — Contact: The American Management Association, 135 West 50th St., New York, N.Y. 10020.

Introduction to Expert Systems. San Francisco, Calif., May 1-3 — Contact: Technology Transfer Institute, 741 Tenth St., Santa Monica, Calif. 90402.

Teradyne User Group Meeting. Newport, R.I., May 1-4 — Contact: Teradyne, 321 Harrison Avenue, Boston, Mass. 02118.

Hambrecht & Quist Technology Conference. San Francisco, May 1-4 — Contact: Hambrecht & Quist, Research Department, 3rd Floor, One Bush St., San Francisco, Calif. 94104.

Interactive Videodisc Seminar. Pittsburgh, Pa., May 4-5 — Contact: Industrial Training Corporation, 13515 Dallas Technology Dr., Herndon, Va. 22071.

Applefest. Boston, May 5-7 — Contact: Cambridge Marketing, One Forbes Road, Lexington, Mass. 02173.

MAY 7-13

Association for Systems Management's Information Systems Conference. Dallas, May 7-10 — Contact: Association for Systems Management, 24587 Bagley Road, Cleveland, Ohio 44138.

Computers & Communications in the Health Care Industry. Chicago, May 7-10 — Contact: Frost & Sullivan, 106 Fulton St., New York, N.Y. 10038.



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Marketing: Last bastion of info age

More firms finding benefits of IS in marketing

BY ALAN J. RYAN
CW STAFF

NEW YORK — No formal *Webster's* definition is needed: Marketing, according to one American Express Co. executive, is simply the art of connecting the unconnected.

Marketing is also one of the last areas within corporate America to embrace the information age, said William R. Morrissey, president of Ogilvy & Mather Direct, a marketing and public relations firm.

Speaking at the recent Information Industry Association "Art of Marketing with Information Conference II" here, Morrissey said that in the 1980s, while most corporate areas have adopted the computer as a cost-saving measure, marketing has really never been under the same pressure as other corporate departments to shave its budget. Rather, marketing has remained the area that spends money to bring in new customers and thus makes money.

Today, though, more and more companies are learning that using some of that fat marketing budget to create databases, develop computerized customer profiles and avoid duplication and overlaps on mailing lists makes a lot of sense. They are also finding that there are cost savings that can be attached to the marketing area.

One example is American Express' Soo-Jin Lee, senior vice-president of worldwide marketing at American Express Travel Related Services. His marketing problem was his firm's globalized focus and the need to refine that focus to make marketing ideas work on a more local level.

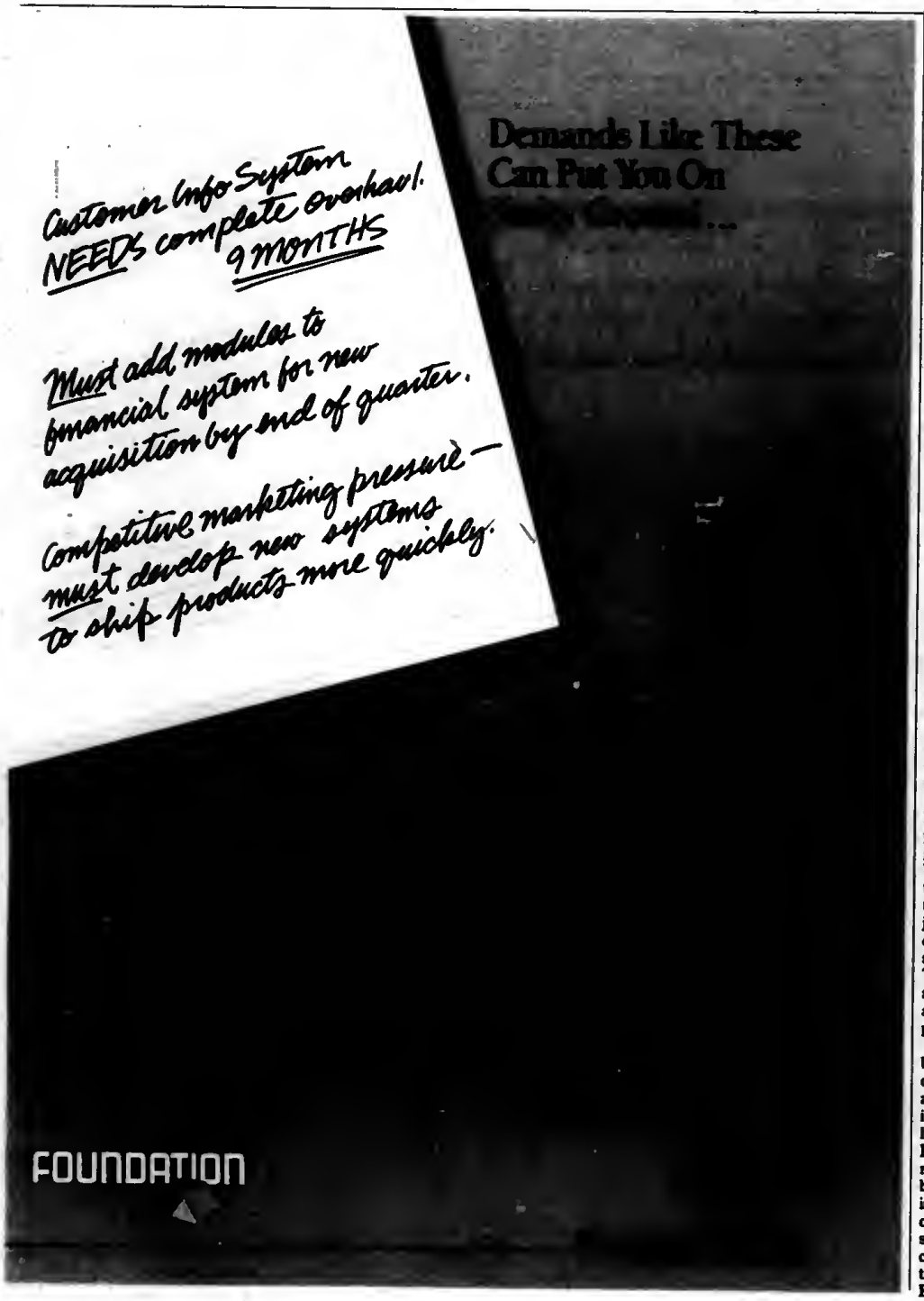
American Express and Lee have used information in many ways during the last several years to work toward their goals. Information systems were used to help build on American Express' reputation, Lee said. One project enabled the turnaround time from customer application to credit card delivery to the customer to drop to just 14 days from 30 days.

"That brought in $17 million in increased revenue in the last 10 years," Lee said, simply because cardholders had their cards faster and began using them sooner.

At Merrill Lynch & Co., Amanda Sherwin, vice-president and manager of creative services, said that the firm spent several million dollars to create a marketing database and more to continuously update that information.

Sherwin said the database can help identify new clients and support ongoing efforts for programs related to current clients. While it may not always be easy to sell such an expensive project to management, she said, "we just defined a clear vision of the end result and gave them straightforward information." To be realistic, management was also told of the potential pitfalls and ways that Sherwin's group planned to overcome them.

The American Express database is used to ensure that the corporation is targeting the right audience. For instance, Lee said, it was helpful to know that cardholder B. Miller was actually Barbara Miller and that future mailings to that customer could be gender-specific. The database is also used to pare down and focus mailing lists by customers, such as those with median incomes higher than $45,000 or those who have done American Express shopping by mail.



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COGNOS

Security focus should be inward

ANALYSIS

BY MICHAEL ALEXANDER
CW STAFF

If there is a positive side to the upsurge of computer crime and abuse in recent years, it is that information systems managers and security professionals plan to increase their computer security budgets. But top management may be directing those responsible for computer security to misdirect their dollars.

According to a study published by the Los Angeles-based National Center for Computer Crime Data (NCCCD), expenditures for computer security as a percentage of the overall computer budget have risen about 66% during the last two years, from 1.4% in 1986 to 2.3% in 1988.

A majority of the 3,500 computer security professionals surveyed reported that they plan to step up their purchases of computer security products, most notably antivirus software. Only 22% planned to buy antivirus products in 1988, but 54% said they planned to purchase those products during the next two years.

The respondents said their use of such technologies as smart cards, audit analysis aids, secure networks and encryption systems will rise dramatically.

There is a lot of emphasis from management on buying antivirus software, said Ken Shaurette, system security administrator at Foremost Life Insurance Co. in Grand Rapids, Mich. "They're seeing a lot of ballyhoo about virus attacks, and they want to make sure that they're protected," he said. "We spend a lot of time chasing viruses, though there is a minimal chance of their getting in, especially at the mainframe level."

Management has to be sold a multifaceted security plan that offers a range of strategies rather than one that stresses some methods over others, Shaurette said. "We need to relate it to the element of risk," he explained. "In banking, for example, in five robberies, the robbers will get only $10,000. But in a case of computer fraud, a single robbery may net 20 times as much. The same thing applies to viruses: The damage is likely to be minimal compared to one instance of computer fraud."

Security drawbacks

Survey respondents also said they intended to scale back their plans to purchase minicomputer and mainframe access control software and call-back modems. In 1988, nearly 86% of computer security professionals said they planned to access control products, but about 75% said they planned to purchase those products in 1991, the NCCCD report noted.

Some of this decrease is indicative of the shift from mini and mainframe computers to local-area networks, researchers said.

"It's a too bad that security for host computers is not going up," said Gerald Grindler, systems consultant at Southwestern Bell Telephone Co. in St. Louis and newly elected president of the Information Systems Security Association, Inc.

The media focus on hackers and viruses has led top management to believe that the nation's communications networks are more at risk than a corporation's host computers, Grindler said. Security managers are looking to secure their systems from outside intrusion — not from within, where the greatest risk lies — to alleviate top management concerns, he added.

"No one wants to tell them that the people from the outside are not the true risk," he said. "The employees are the greatest threat."

The survey's respondents come from a variety of industries, with banking, military and government aerospace representing the greatest concentrations. Retail businesses were surprisingly underrepresented, suggesting a possible lack of computer security consciousness in this portion of the economy, the NCCCD reported.

"Computerworld Response Card Decks really opened doors to the 'heavy-hitter' accounts..."

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Company president Alec Gindis was impressed with industry reaction after a news story announcing XCOM 6.2 appeared in *Computerworld*. So when Spectrum began implementing its marketing strategy for the new product, he considered *Computerworld* a key resource.



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"And it's paid off; the results have been terrific. We've received hundreds of high-quality leads so far, and they're still coming in. In fact, Computerworld Response Card Decks really opened doors to the 'heavy-hitter' accounts — major organizations that learned about us through the cards.

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— Alec Gindis
President
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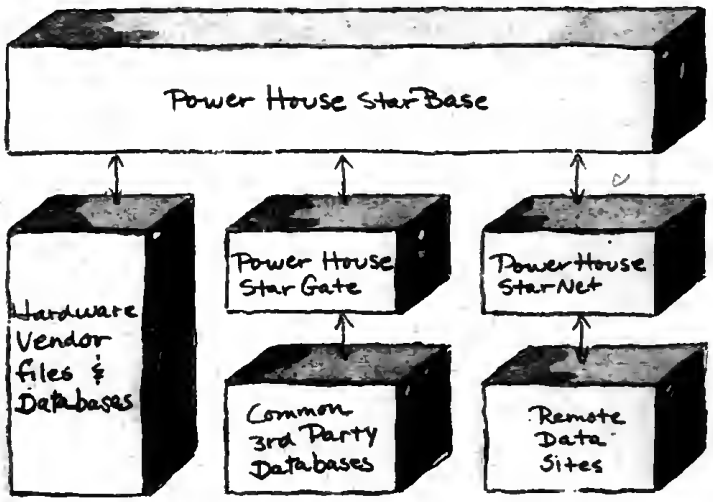
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CEOs give credit for today but expect more tomorrow

BY GLENN RIFKIN

Bruce Seaton speaks with the confidence and insight of a seasoned information systems executive. He can tell you without hesitation the number of personal computers that are used by the firm and how many MIPS are devoted to electronic mail. He has pushed IS hard to help his company gain leadership in its industry. Information systems, he declares, "is fundamental to how we operate."

Despite his insight, Seaton is not an IS executive. He is the chairman and chief executive officer of American President Companies Ltd. (APC), a $2 billion distribution and transportation company in Oakland, Calif.

Few CEOs carry personal involvement as far as Bruce Seaton does, but his focus on IS exemplifies the trend among top business executives. Corporate leaders are buying into the notion that IS is critical to the survival and prosperity of their companies as the new decade looms.

This is a mixed blessing for IS. Along with more attention, CEOs are now dispensing more criticism — they are just not getting the return they expect from their IS investment.

According to an exclusive *Computerworld* survey of CEOs and other top business leaders (presidents, chief operating officers and chief financial officers) in the Fortune 1,000, 64% agreed with the statement: "I do not feel that my organization is getting the most for its information systems investment." And 68% said that IS was only "somewhat meeting expectations" in their companies.

At APC, Seaton echoes the frustration of many CEOs. His company devotes nearly 5% of sales — $100 million — to information resources, and though his IS department is highly visible and state of the art, Seaton wants more.

Rifkin is a *Computerworld* Features co-editor.



MARVIN COLLINS

CEO Seaton *says keeping up means falling behind*

"We're far from where I'd like us to be in terms of productivity," he says. "In the 1990s, you can't just tread water and stay competitive. You need constant improvement. If information resources simply stays with the pack, we will drop behind significantly."

At Allen-Bradley Co. in Milwaukee, a subsidiary of Rockwell International Corp. that manufactures industrial automation systems, CEO J. Tracy O'Rourke is also far from satisfied, even though most people would say his company represents the leading edge of information systems use. "We have an IS plan, but it's not of the quality of other parts of the business," O'Rourke says. "We're nowhere near where we need to be, and we're among the better companies when it comes to IS."

Despite the apparent dissatisfaction with the return on investment, business leaders are clear about the importance of IS to their organizations.

According to the CW survey, 85% agreed that IS holds the key to competitive advantage for their organizations in the 1990s. Eighty-eight percent said they believe that information systems will significantly change the way their companies do business in the next decade.

"MIS is the backbone of any company," says Jack Twyman, CEO of Super Food Services, Inc. in Dayton, Ohio. "In the '90s, information and the speed with which you receive it will be extremely important to charting the course of any company."

Top executives have not suddenly become computer addicts or technological visionaries. While 92% of the respondents in the survey agreed that IS is becoming more important to their companies and 82% said they were personally paying more attention to IS now than they were several years ago, many are being driven in that direction by a basic business tenet — keeping up with the competition.

Twyman is a prime example. "We're not that unique in terms of what we have in technology," he says. "Our competitors have the same equipment. So if you don't stay on top of it, you'll be at a major disadvantage."

No surprises

For the most part, says Mel Bergstein, a principal at Arthur Andersen Consulting in Chicago, CEOs are not necessarily interested in breaking new ground. They just do not want to be surprised by information systems advances made by their competitors.

For the moment, the perceptions of technology by CEOs remain mixed. Many have not moved beyond old concepts of data processing and the computer room. For example, when asked what the phrase "information systems" conjures up in their minds, 57% of senior executives indicated computers/hardware/mainframe systems.

Attitudes and viewpoints are definitely beginning to change, but not all at once and not without frustration.

"CEOs are much more savvy about IS today," reports Raymond Lane, head of the IS consulting group at Booz, Allen & Hamilton, Inc. in Dallas. "IS is so

INSIDE

PC exposure may lead to more demands
Page 82

A warning to IS: Start talking or else
Page 83

A line to the top cuts a wider swath
Page 85

Expectations

FROM PREVIOUS PAGE

important, they are being forced to come up the learning curve. Spending is so high in that area that they have to be in meetings they wouldn't normally sit in on. But the frustration level is also high."

Peter Keen, author and executive director of the International Center for Information Technologies in Washington, D.C., consults regularly with CEOs and says he sees a variety of attitudes. Keen puts today's CEOs in three categories:

- Those who wish technology would go away.
- Those who think the job should be upgraded and delegated to a "heavyweight" in the organization and who just want someone to "take charge and keep it away from me."
- Those who see IS as a part of everyday life and recognize that the IS chief now has to be part of top management.

"Unfortunately, only about 20% are in that third category," Keen says. "Most companies are still struggling to figure out just what is meant by information technology."

Consultants who work with top-level executives agree that the appreciation and acceptance of technology varies dramatically from company to company and industry to industry.

The innovators

Nevertheless, a small but highly visible cadre of aggressive and forward-looking CEOs is beginning to emerge. These executives are asking their chief information officers to innovate, find new ways to compete and erect new barriers to competition. "They want to make technology systemic, part of the fabric of the company," Bergstein says.

Exemplifying the "new wave" of CEOs are leaders like Seaton and Vernon R. Loucks Jr., CEO at Baxter Healthcare Corp. in Deerfield, Ill.

Loucks points out that IS is more important to his firm than to most because of an innovative customer-interactive database that ties most of the customer base directly into the corporation. "This makes IS one of our primary marketing tools," Loucks says. "Two-thirds of our customers are on this automated database and that represents $5.5 billion of our business."

Loucks has kept a close eye on IS for the past nine years and even more so since Baxter acquired American Hospital Supply in 1985. When he says that IS will be a major competitive factor in the 1990s, he is not simply mouthing platitudes.

"It will cost anyone at least $100 million to compete with us in terms of our IS capabilities," he says. "And by the time they catch up, we'll be on to the next iteration. IS is a major part of our strategy."

A critical question is how many CEOs are prepared to follow the lead of their more adventurous peers. Although consultants hear CEOs talk more openly about the impact of IS, some say these executives are simply responding to the increased coverage that technology has received in the business press.

Many of these executives may be parroting the conventional wisdom that IS is critical for competitive advantage, without knowing how to measure its value in their own companies.



"WE HAVE an IS plan, but it's not of the quality of other parts of the business. We're nowhere near where we need to be."

J. TRACY O'ROURKE
ALLEN-BRADLEY

While 98% of the executives surveyed agreed that IS has a significant impact on the bottom line of their organizations, their answers also indicated that measuring that value is difficult. Although 76% of those polled claimed that the value of IS is quantifiable, when pressed as to how they measure that value, the majority were stymied or offered vague, general guidelines.

"We measure the benefits by the impact it has on the customer," one CEO said. Another talked of looking at the pluses and minuses but conceded that what it really comes down to is "a gut reaction." Still another joked, "I said it can be done, not that I can do it."

William A. Fickling Jr., CEO of Charter Medical Corp. in Macon, Ga., openly admits that the benefits of IS are not measurable in his company.

The effect, he says, is determined by how IS is perceived and by the relationship that group has with other departments. "We get better response than we used to, but the problem is there's no good way to measure," Fickling says.

Richard P. Wollenberg, CEO of Longview Fibre Co. in Longview, Wash., calls attempts at measurement futile. "They're moving in the right direction," he says, "but it's virtually impossible to quantify."

For CEOs, the lack of a clear yardstick is perhaps the most frustrating aspect of interacting with IS, according to Booz Allen's Lane.

"Some of these companies are calling the shots on billion-dollar IS budgets, and it's extremely frustrating for CEOs to have that base and not be able to second-guess their MIS management," Lane explains. "Most CEOs understand the business dynamics of their company and could run any area of the company, but not the computer area."

In his work at Booz Allen, Lane interviewed 70 senior executives in Fortune 500 companies, including CEOs, senior IS execs and senior business executives. He asked how they felt about the large amounts of money they have spent on IS over the past 10 years.

The response Lane expected to hear was that they were tired of spending. Instead, he found that CEOs thought the money spent was worthwhile but still worried about the lack of conventional proof. "The return *feels* good," Lane says. "But it's getting to be a big line item in the budget, and there's no way to measure the return."

Better measures

There are those who believe savvy CEOs do not need quantification. According to Michael Hammer, president of Hammer & Co., a Cambridge, Mass.-based consulting group, some CEOs use financial measures as a substitute for intuition and substantive understanding. "The more a CEO knows the substance of his business, the less he looks at numbers," Hammer says.

But, despite such arguments and the difficulty of obtaining quantifiable proof, top executives are likely to continue asking for better value measurements. "CEOs will start demanding more visible evidence of competitive advantage over the next four years," Keen predicts.

William B. Ellis, chairman and CEO of Northeast Utilities, a $2.3 billion electric and gas utility based in Hartford, Conn., knows firsthand how difficult it is to assign a value to an information system. He once chaired a committee within the company that reviewed cost benefits of computer services, and the experience convinced him that true quantification just isn't possible right now. But even so, Ellis is not about to stop asking for it.

"The discipline of demanding quantification is very important," Ellis says. "In fact, it's tougher to stay disciplined about that now because people are saying how important technology is and they marvel at the machines without demanding cost benefits."

One expectation top executives do not have is the emergence of IS chiefs or CIOs as real contenders for the top job in their companies.

Although 56% of those polled in the *Computerworld* survey indicated that IS is a good or very good training ground for possible future CEOs, 72% of the same group said it was unlikely that an individual from IS would rise to take the helm at *their* firms.

Though some CEOs said "talent is where you find it," there was general agreement that the technical focus of IS requires a different kind of mind-set than that of a CEO.

According to the CW survey, top executives would be more inclined to look for successors in finance (37%), marketing (31%) or operations/administration (27%).

"CEOs have big egos, and they tend to believe that all CEOs are created in their own image," says Arthur Andersen's Bergstein. "And very few CEOs have technical backgrounds."



"I WANT to be a $250 million business in five years. I can't do it without computers."

LILLIAN VERNON KATZ
LILLIAN VERNON

Despite the fact that the business and trade press has made much of a few IS executives — such as Robert Crandall at American Airlines — moving up to the top office, consultants and CEOs agreed that this hardly represented a trend.

Such examples, Lane says, are overblown. These individuals were exceptions to the rule, successful because of their personality or business acumen, he explains.

The survey did find a somewhat more encouraging picture when it examined the backgrounds of the respondents.

While the largest single collection of all top executives — 28% — came out of the finance area and 18% of the CEOs said that their background was in sales and marketing, information systems turned out to be a more common thread than might have been expected. Eighteen percent of the CEOs and 24% of the non-CEOs surveyed did, in fact, have an IS background.

Acceptance is slow, however, and the road to the top may take several twists and turns for IS professionals. In many organizations, IS continues to report to a high-level vice-president of administration or the chief operating officer.

"The computer room is our public utility," says Gerald E. Schultz, CEO at Bell & Howell Co. in Skokie, Ill. "The IS chief is a resource for our general managers to call on. But he is not driving the boat."

Longview Fibre's Wollenberg is equally adamant. "Just as war is too important to be left to the generals, management is too important to be left to MIS," he says. "The MIS chief has to be a chess player, a problem solver, the kind of guy who works the math puzzle in *Scientific American*."

Wollenberg says that production is the best route to CEO in his company with sales and finance as the alternate routes. CEOs need a broad overview, he claims, as well as the kind of seasoning that you can get from "rough-and-tumble daily contact with people on the production floor." An MIS manager doesn't have either. "He is immersed in

Continued on page 78

METHODOLOGY

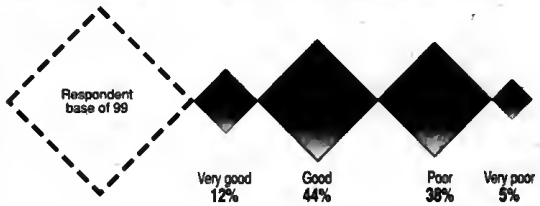
One hundred and three CEOs and top corporate executives from Fortune 1,000 companies participated in *Computerworld's* telephone survey, discussed here. Interviews were conducted for CW by Boston-based First Market Research, Inc. from February to March 1989. Major findings are summarized on the facing page.

Executive perspectives



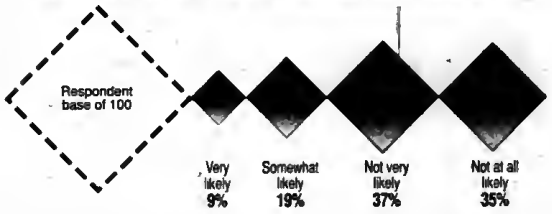
IF YOU'VE EVER WONDERED what top executives really think about technology, information systems investments and IS, here are your answers from more than 100 CEOs and top corporate executives at Fortune 1,000 companies.

"How would you characterize the MIS or information systems area as a training ground for possible future CEOs?"



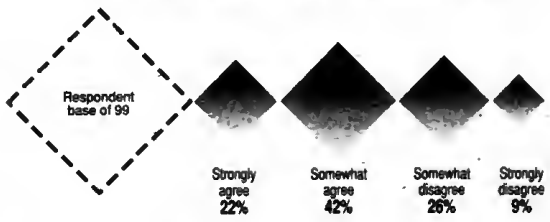
Although the majority of top executives said that the MIS or information systems area is a good or very good training ground for CEOs, few counted it as likely that an individual with such a background would wind up in charge at their companies.

"How likely is it that your organization will be headed by an individual coming from the information systems area?"



Sixty-four percent of top executives surveyed think they could be getting more for their dollar from information systems.

"I do not feel that my organization is getting the most for its information systems investment"

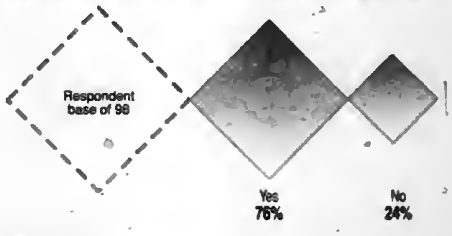


When asked how their information sytems group could perform better, 11% indicated that their group is doing a good or excellent job and meeting expectations. Among those who felt some performance improvement possible, the following suggestions came up:

- *Faster and more timely execution (16%)*
- *Better efficiency and productivity and more cost-effective work (12%)*
- *Better interaction with users and better understanding of user and customer needs (10%)*

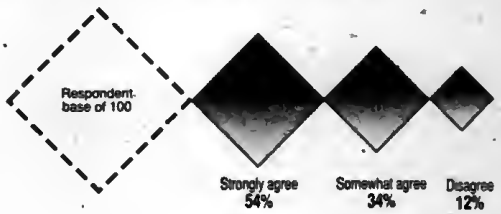
More than three quarters of the executives said they think the benefits of information systems are quantifiable. Few, however, were able to provide specifics on how their own organizations handle the translation.

"Are the values and benefits of information systems and information technology measurable or quantifiable?"



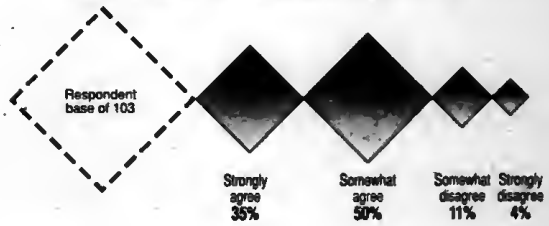
Top executives expect that information systems will have major impacts on their businesses during the 1990s, both procedurally and competitively.

"I believe that information systems will significantly change the way my company does business in the 1990s"



A question about this statement also garnered overwhelming agreement:

"I believe that information systems hold the key to competitive advantage for my organization in the 1990s"



The real difference was in the strength of the affirmation.

CW CHARTS: TOM MONAHAN

Expectations

CONTINUED FROM PAGE 76

detail, and be lives in a kind of ivory tower."

Northeast Utilities' Ellis cannot imagine why an IS executive would think a switch into general management was either desirable or possible. Ellis, who worked in data processing in the U.S. Army and keeps a close watch on his company's IS operations today, says he believes that IS work is "fun, exciting, challenging and always changing.

"The path to CEO is tough; you make a lot of mistakes, it takes a lot of time, and it's not often much fun," Ellis says. "It's unrealistic for someone in IS to expect to have 20 years of fun and then become the CEO. It's just not that easy."

> "CEOs HAVE BIG egos, and they tend to believe that all CEOs are created in their own image. And very few CEOs have technical backgrounds."
>
> MEL BERGSTEIN
> ARTHUR ANDERSEN CONSULTING

Even APC's Seaton, who can do a very good imitation of an IS executive and clearly values what they do, is not convinced that they have the right stuff for the top jobs. "I haven't seen the people in information resources with general-management breadth," he says. "It will take a new generation, perhaps one that goes through information resources and then into the user community and up."

The profile that top executives look for in an IS chief, according to the CW survey, is a person who has an almost equal blending of business/product/operational understanding and technical proficiency. Good management and administrative skills ranked next in order of importance, with interpersonal skills following closely.

As those responses hint, and some CEOs will say, there is more to their tendency to compartmentalize IS executives than mere doubt about their business acumen and general management skills. Top executives also see the specialized knowledge of IS as a valuable commodity that they do not want diluted or blunted.

One CEO, who wished not to be identified, insisted, for example, that the technology is so complex that an IS chief cannot afford to let his technical judgment slip. "If a guy doesn't understand the technology, the people underneath him will take him in any direction they want . . . and they do."

Still, IS chiefs should not be overly discouraged by the career outlook. As Baxter's Loucks puts it, "How you make the call depends on when you make the call" in naming a CEO.



Baxter's Loucks

It also depends on the firm. Ellen Gordon, president of Tootsie Roll Industries, Inc. in Chicago, says, "We look at people on an equal footing."

Besides, there are other jobs close to the top in which IS executives may have the inside track. Chief operating officer is one real possibility. "In enlightened companies," Keen says, "IS is a training ground for COOs. The IS guy is running your network, and it gives him a superb insight into operations."



Charter's Pickling

Furthermore, as the corporation changes, the ideas about career paths may change as well. Allen-Bradley's O'Rourke says that although IS is a vertical discipline today, its role is broadening.

"The days when IS didn't talk to anyone else in the company are gone. They have to work together with other groups, so there will be a tremendous broadening of IS in the future."



Northeast Utilities' Ellis

Almost all respondents agree that the future bodes well for IS in the organization. Whether or not IS is a path to the head of the company, there is no doubt that it is a critical part of the corporate life-support system.

"I'm spending the largest amount of money on systems," says Lillian Vernon Katz, CEO of Lillian Vernon Corp., a mail-order business in Mount Vernon, N.Y. "I want to be a $250 million business in five years. I can't do it without computers."

"We have a million customers," Ellis adds. "The ability to call all the information on-screen — from billing to where the power box is located — gives you the ability to talk to that customer as if they were the only customer in the world. That's very powerful." ●



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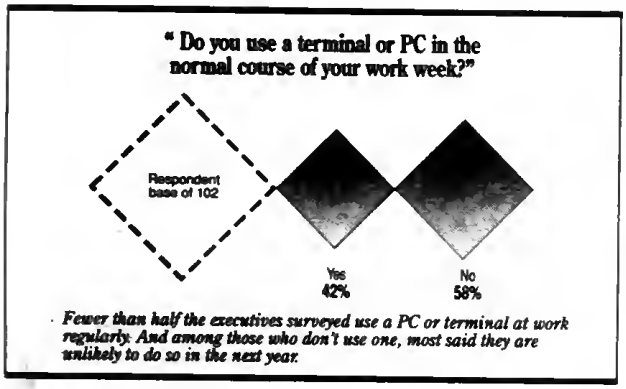
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COMPUTER ASSOCIATES



Fewer than half the executives surveyed use a PC or terminal at work regularly. And among those who don't use one, most said they are unlikely to do so in the next year.

CEOs, PCs don't mix well

"I don't use a personal computer," says Lillian Vernon Katz. "I'm a merchant. If I need a number, I go to the finance department."

Katz, chairman and chief executive officer of Lillian Vernon Corp. in Mount Vernon, N.Y., is typical of most CEOs in her aversion to personal use of technology. According to the *Computerworld* survey, 58% of CEOs questioned admitted that they do not use a computer, and 64% of those who don't said they have no plans to put their hands on the technology in the near future.

To some extent, the dividing line between use and nonuse is generational. Many seasoned CEOs seem to feel like Richard P. Wollenberg, CEO of Longview Fibre Co. in Longview, Wash., who says, "I've been in business for 50 years, and I have no desire to use a computer. If I was 20 years younger, I might try, but it's a tremendous learning effort."

Even CEOs with a strong perception of the value of information systems tend to shy away from the machines.

William Ellis, chairman of Northeast Utilities in Hartford, Conn., keeps close tabs on the IS function and has a better-than-average understanding of technology. But he expresses no interest in going on-line. "I carry a little calculator — that's it," Ellis says. "I don't feel the need to go directly to the computer for information. I prefer calling someone who can give me a number and tell me what that number means."

CEO reaction to computers is no different from that of society in general, says Michael Hammer, president of Hammer & Co. in Cambridge, Mass. "We forget that CEOs are people, too," he points out. Like most people, he says, CEOs are gradually becoming acclimated to computers through exposure in their nonbusiness lives. And they can see the machines' value but still feel somewhat queasy about extended contact.

J. Tracy O'Rourke at Allen-Bradley Co., for example, will use a PC and terminal, but only if it is buffered. He performs trend analyses on a custom-designed executive information system with lots of Help screens and simple commands. "Had I been exposed to it before high school and college, I'd feel more comfortable with it," he says.

The rare CEOs who have embraced the computer quickly get hooked. Howard Humphrey, CEO of Franklin Life Insurance Co. in Springfield, Ill., uses a Zenith Data Systems laptop PC for financial projections, for month-by-month financial reports and to handle his executive index.

Ellen Gordon, president of Tootsie Roll Industries, Inc., is a convert-turned-zealot. Gordon has two PCs and a terminal in her home. The IS group set up the terminal to give her access to the mainframe, and she uses the PCs for personal as well as business use. "It's an integral part of my workday," Gordon declares. "All of our top people should get to know it."

There is some evidence that regular use of PCs has an impact on the way top executives think about information systems in their organizations. According to *Computerworld's* survey, those who interact regularly with computers are slightly stronger in their belief that information systems holds the key to competitive advantage over the next decade.

They are, however, more likely to see the benefits of information systems and information technology as quantifiable. They are also more inclined to think that their firms may not be getting as much as they could for their IS investments.

The differences in attitude between users and nonusers are not pronounced, but they are there, and they hint that in the coming years, when more top executives feel comfortable with PCs, information systems executives may find the questions from the executive suite becoming more pointed. •

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INTERVIEW

From the back room to the boardroom

MIS will play a major role in shaping corporate strategies in the 1990s. The key to reaching their goals is for MIS to see eye-to-eye with their CEOs, says author and professor John Donovan

Information systems executives hold the keys to corporate competitive advantage in their hands, but unless they can close the ever-widening gap between the technical experts on their staffs and the users in their organizations, everyone will lose. That is the sentiment expressed by John Donovan, who has spent the past six years teaching and consulting with Fortune 500 executives as well as executives from 1,000 other organizations.

On leave from his position as professor of management at MIT's Sloan School of Management to chair the Cambridge Technology Group, and author of the recent book *Crisis in Technology*, Donovan recently spoke with free-lance writer Katie Crane. His message: Unless IS executives start doing things differently, their jobs, their firms and this country's economic power will be at risk.

Can you describe, from your first-hand experience, how today's IS executives and business executives work together?

In many cases, they are not working together successfully. Every day I hear the same laments. From MIS people, it is, "My boss doesn't use me or the technology right." From the senior business executives, it is, "My MIS people aren't strategic thinkers; it is as if they are talking a foreign language."

How can MIS executives be more responsive to business users?

I feel as though I am a marriage counselor. Why won't these two groups talk to each other? They want the same thing, they just don't say it in the same way.

There is a great example in Lee Iacocca's new book, where an MIS executive marches into Iacocca's office proposing to spend $45 million (and who knows how many years) so that all their systems can talk to one another. "Great," says Iacocca, "but what does this do for the company?" Here's the MIS guy's big chance. How does he answer? "Glad you asked," he replies. "This will save us 22 new employees." Dismayed, Iacocca reports that after millions of dollars and thousands of hours he still doesn't know whether their decisions or their cars are getting any better. Like practically every other CEO in this country, Iacocca is pleading for strategic systems.

What's at the root of the mismatch between need and response?

The major difficulty is that MIS's traditional pillage-and-burn strategy — get rid of everything and start over — doesn't work for most CEOs. Organizations need strategic systems, and they need them now. Strategic applications demand different skills of the technical expert. If it takes six years to do what these organizations want tomorrow, the technology is an impediment.

I can give you two life-or-death examples of the kind of rapid strategic response that I am talking about. One has to do with public health and the other with air safety.

In the first instance, 66 American Red Cross blood centers had no way to share information about blood samples in their respective locations. This posed a threat that samples without adequate testing could be released in emergencies.

In the second, Avco Textron Lycoming was challenged by the Federal Aviation Administration to list all the planes that had a certain defective part, and [the company] couldn't do it.

These organizations could not wait six years for a solution; they couldn't wait six months. The Red Cross built its entire system in 14 weeks. Avco built theirs in one week.

You are coming down pretty hard on MIS executives . . .

I'm telling you there is a bloodbath out there with respect to MIS executives.

In one sense, we can't blame MIS people, because they were trained as tactical experts, not strategic executives. Furthermore, most of them don't have the tools to build strategic applications.

Technologies do exist today that make it possible to build systems at one-tenth the cost and in one-tenth the time, but most MIS executives are not using them. Why? There are a lot of forces preventing MIS executives from moving to these technologies, not the least of which are the vendors.



THE ONES WHO learn how to deal within the organization's political arena, . . . who can lead the charge instead of following vendors, will be the winners.

My point is this: MIS executives have to make a basic decision about whether they are going to make necessary changes in the way they think and operate. If they do, they hold the keys to the kingdom. Information systems executives are the only people who can improve the competitive position of U.S. corporations as we enter the 1990s.

How do you think MIS executives should change?

To begin with, they have to stop seeing themselves as technical, back-room experts and begin acting like strategic, boardroom executives. That's one very important change that must be made, but there are others.

What are some of the others?

They have to stop making a technical case — what the technology is — and start making a business case — what the technology can do. They have to stop worrying so much about MIPS and CPU cycles and start becoming more concerned with return on investment, quality and customer satisfaction.

They have to move gracefully from centralized to decentralized computing, stop building what I call "stovepipe" systems and start building integrated systems. They have to shift their focus from data processing to networking. And finally, they have to realize that the day is past when business was driven by production. Today's business is market-driven; whatever they do must add value.

If they do all those things, will they be on the same wavelength as the business executives?

They have to change attitudes, too. Those who are disdainful of sales and marketing, who ignore the politics of a firm and who align themselves with vendors will surely be the losers. The ones who learn how to articulate, manage and deal within the organization's political arena; who can address the business goals of their firm strategically; who can lead the charge instead of following vendors, will be the winners.

You seem to be describing two extremes of a continuum. Surely there are MIS

managers everywhere along that continuum right now.
That's right. But for those who remain at the tactical end of the continuum, the frustration level and the firings are horrendous. If they don't move toward the strategic end, they will be lost. And so will the companies they serve. I am talking about survival.

Are you suggesting that more than their jobs are at stake?
Yes. Much more. Even our economic power base is at risk. History shows that wherever economic power goes, ideologic power follows. What happens if economic power shifts from the U.S. to Japan?

Every one of us must understand what is at stake, what we could lose if the gap is not closed between MIS executives and the strategic objectives of their firms.

What advice do you have for executives on both sides? What can they do to close the gap?
I have the same advice for both — education. The CEO has to find, or create, an education program for the IS executive that is a mind-changing experience. Such a program should teach three things: 1) how to identify strategic opportunities (the business side); 2) what technologies are going to be important in implementing strategic applications (the technical side); and 3) how to manage the process.

While they're at it, CEOs must find a program for themselves that explains what technology can do for their firms. It can't be *about* technology; it's got to talk about what the technology can do.

How can a single educational program teach IS executives all of the things you mentioned?
The program has to expose participants to a new way of thinking plus a way of implementing that thinking. Moreover, it has to be expressed to them in a way they can understand — by people who know what it's like to be in their shoes.

Just talking about strategic systems doesn't work for most MIS executives; it sounds like the impossible dream. They don't have a clue how to bring such systems to reality in their own firms, so why bother? If they can find a problem that shows them how to convert their dreams to reality, then they start dreaming.

So the best educational programs are experiential, not academic?
Yes. Let me give you an example from my own experience. We conduct a prototyping program in which we team three IS experts, three users and two strategic people from one company for one week to build a prototype of their most strategic system. On Friday, their senior executives come for a presentation.

Last week, the U.S. Army, which has spent $1 billion and 10 years trying to solve this problem, built a prototype that had members of the Pentagon and the Joint Chiefs of Staff — two- and three-star generals — on their feet for a standing ovation. For the first time in this country's history, they had critical information that they had never had before.

Can you imagine CEOs giving a standing ovation to their information systems people? Some corporations fire their CIO every year.

What is at the core of this CIO turnover — unrealistic expectations on the part of CEOs or poor performance by MIS executives?
I'm afraid it's largely the CIOs. In many cases, the technology has passed them by. And if you ask them about the difference between return on investment and return on assets, some can't answer. How can they build a strategic application if they don't know that?

EVEN OUR ECONOMIC power base is at risk. What will happen if the economic power shifts from the U.S. to Japan?

JOHN DONOVAN
CAMBRIDGE TECHNOLOGY

Very few CIOs today have the ability to bring the vision to reality. The CIOs who come up from the technical side know the technology, but they have no idea how to identify strategic applications. Those who come up from the business side have the business sense but don't have the technical expertise to turn it into reality. It's that gap again. Few CIOs have successfully bridged that gap.

You don't sound very optimistic. How many IS executives do you think can realistically make the transition?
On the contrary, my conclusion is optimistic. I believe that everyone who gets educated in the way I've just described will make it. I know one CIO who, after such a program, proposed to implement a strategic system in 12 weeks for a projected return of $53 million per year. The CIO before him had proposed a $200 million five-year project and lost his job.

The CIOs who make the switch become the heroes of their organizations. Only the ones who can't or won't are doomed to failure. •

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Dotted-line dynamics

Access to the CEO's ear can lead to strategic backing for IS

BY LARRY STEVENS

As MIS becomes more involved in every aspect of a company's business, from manufacturing to publishing to decision support, some organizations are finding that it makes sense to have the head of the information systems department report directly to the company chief executive officer, rather than to the chief financial or operating officer or other intermediate-level official.

Direct access and direct responsibility to the top executive changes the way information systems executives think about and approach MIS issues, according to Madeline Weiss, president of Madeline Weiss Associates, Inc. in Bethesda, Md.

Such a move forces MIS executives to think in terms of the company's overall strategic planning and how its investment in technology can best fit into those plans.

When an IS manager reports to a CFO, which has been a common arrangement, he tends to try to advance the IS department, Weiss says, by fighting for more resources. But when that same manager answers to the CEO, he has to think more about the company's overall business strategy, even if part of that plan might mean trimming resources from IS.

Including MIS among senior management is also bound to change the way the organization views technology, Weiss says. When MIS is on the outside, the thinking usually revolves around how MIS can improve what already exists. But when MIS has a role in shaping the strategy of a company, the use of technology becomes more creative.

"When MIS initiates ideas and provides a reality check, technology becomes part of the strategy rather than being used only for problem solving," she says.

Bob Walsh, MIS director at Schwinn Bicycle Co., went through this kind of transition a few years ago when Schwinn, in an attempt to regain market share, reorganized its corporate structure and put Walsh under the CEO's wing instead of the CFO's.

Walsh, who now has a spot on the executive board, says his change in status has altered both his own perspective and the attitudes of others. The new reporting arrangement has, he says, given him an inside view of Schwinn's general business decisions.

It has also given other executives a chance to learn about the potentials and limitations of technologies and increased upper management's awareness of how important MIS can be to the company's survival.

> "NOW, PEOPLE know that when I say I talked over an idea with the boss, I mean the top boss rather than an intermediary. And people listen to the idea more closely."
>
> BOB WALSH
> SCHWINN

Walsh says CEO Ed Schwinn had always been receptive to new technologies, but the restructuring sent a signal to the rest of the organization that information systems were considered a high-priority area.

"When there was a space between the CEO and MIS, it was harder for us to get our ideas across to other people in the organization," Walsh says. "Now, people know that when I say I talked over an idea with the boss, I mean the top boss rather than an intermediary. And people listen to the idea more closely."

Balancing finance

Another reason that some organizations are starting to rethink the reporting routes for MIS is the perception that finance is claiming a disproportionate share of technology resources, according to Jacques Passino Jr., director of information and technology planning at Arthur Andersen Consulting in Detroit.

"You have an unbalanced resource allocation, and that can only last so long before people begin banging cages," Passino says.

Other departments, he notes, such as warehouse and logistics management and sales and marketing, are beginning to realize that the most likely way to get new technologies into their own areas is to make MIS free and equal.

Even when resource consumption is not an issue, suitability may be, says Ray Hall, principal at Booz, Allen & Hamilton, Inc. in Dallas.

"When MIS performed mostly financial applications, it made sense for it to report to a CFO," he says. "But in many organizations, that relationship is now anachronistic."

Although Walter Zerrenner, vice-president of IS at Evangelical Health Systems

Continued on page 88

Stevens is a free-lance writer based in Springfield, Mass.

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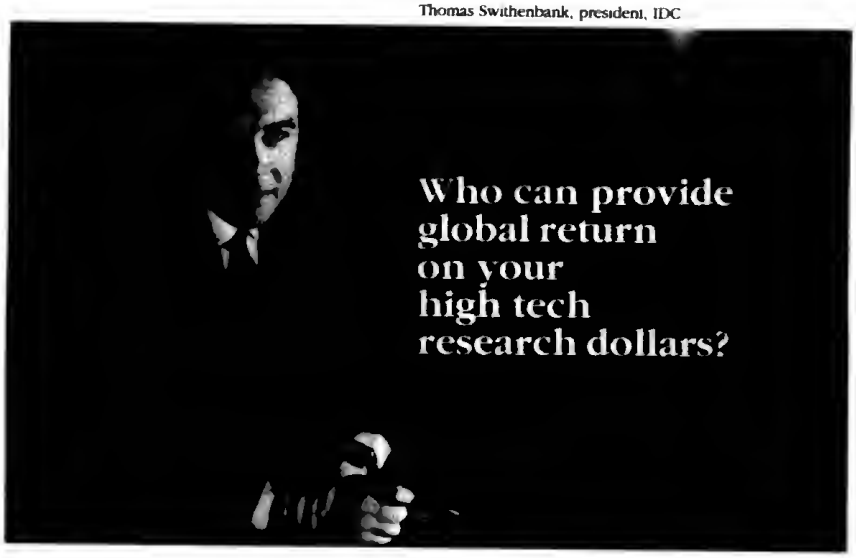
Technology as a stand-alone subject holds less appeal for top executives than technology as a means to a business end. When asked which information technologies interested or excited them, 18% of the participants in the *Computerworld* survey mentioned communications and networking. But an even greater number (27%) could not think of one technology worth mentioning.

Some of the reasons that explain this lack of interest included the following:

- "I'm not a user."
- "It's not my job to study new technology."
- "I'm too far away from it to have any strong feelings."
- Technologies "are not exciting."
- "I really believe a company must be customer-driven, not technology-driven."
- "I think MIS is a necessary evil — you become a slave to computers." (This was given by a CEO whose firm is involved in voice mail, satellite communications and networking. But those technologies, he says, only indicate that "I have convinced myself that these operations will make us more competitive.")
- "Technology for the sake of technology is inappropriate and distorts the business requirements. There are continuing hazards in chasing technology."
- "I try not to fall in love with any one technology and, instead, do complete cost-benefit analyses to determine its real value."
- "I'm not interested in technologies, except in terms of what they can do for my business."

Top executives were more responsive when asked what particular technologies may play an important role in the 1990s. Answers such as "None" and "I don't know" still topped the list, but the percentage of those answers decreased by 6%.

Thomas Swithenbank, president, IDC



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Dynamics

CONTINUED FROM PAGE 85

in Oakland, Ill., never reported to the CFO — instead, he previously reported to the vice-president of corporate services — he says the effect was the same.

Before his promotion in December 1987, which changed his title from corporate director to vice-president and gave him a direct reporting line to the CEO, Zerrenner says he had very little chance to provide input on the company's technological direction.

His responsibilities were mainly to maintain and oversee back-room operations such as patient billing, general ledger and accounts payable.

> "WHEN MIS performed mostly financial applications, it made sense for it to report to a CFO. But in many organizations, that relationship is now anachronistic."
>
> RAY HALL
> BOOZ ALLEN

The way things worked before, Zerrenner was handed a budget each year and told to do what he could with it. "Our budgets had nothing to do with an MIS plan, which we didn't have, but was based on what was left over," he says.

Zerrenner's promotion has already changed that way of thinking.

One month after his promotion, Zerrenner was given his first chance to develop a five-year strategic plan for information systems, which was completed and approved in November 1988.

The plan's price tag is $17 million in capital expenditures and $75 million in operating expenses over five years, a substantial increase from previous budgets. But, more importantly, resource allocations are no longer arbitrary but are based on decisions about technology.

One outcome was the creation of a PC link to laboratory and other diagnostic areas, which allows physicians using a modem to access lab results from any computer without having to physically visit the lab.

"This kind of system would have been very hard to get through when MIS was seen as an appendage to the financial area," Zerrenner says. •

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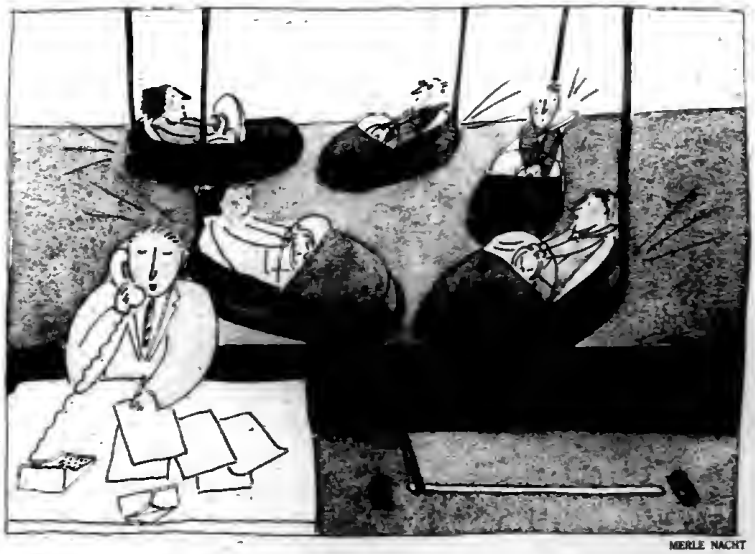
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CW

Running in crisis mode?

If so, try moving away from the technical edge, back toward the human side

BY GOPAL KAPUR



MERLE NACHT

Information systems managers have heard the following kinds of stories many times before:

- A U.S. Army study of nine federal projects found that 47% were delivered but not used.
- A major U.S. bank abandoned a computerized accounting system after spending $80 million on its development.
- Approximately 22,000 subscribers to a major insurance company have canceled their policies since 1985. Claims had not been paid to the tune of tens of millions of dollars.
- A major U.S. airline lost $50 million in a single quarter because of problems caused by untested software.
- A survey of 59 IS projects conducted early this year by the Center for Project Management reveals that 79% of the projects are behind schedule, 19% are on schedule and 2% are ahead of schedule. The average effort expended on each project is 235 man-months, and the average project has an estimated duration of 20.7 months. The problems are so widespread that up to 25% of projects involving more than 60,000 lines of code are cancelled before completion [CW, May 30, 1988].

While in many ways unfathomable, the most amazing thing about these kinds of statistics is that they continue to shock IS. The second most amazing thing is that they persist. There seems to be broad acceptance of inordinate delays, excessive budget overruns, postimplementation testing and user dissatisfaction as a normal part of the IS project management process.

Yet surely all of these projects did not fail on purpose. Undoubtedly they used the latest hardware and software, fourth-generation languages (4GL) and databases, computer-aided software engineering (CASE) and project management tools and a gaggle of information systems professionals. So why did they fail? Although they had the equipment and the personnel, they just did not know how to get the one to work with the other. Like so many IS organizations, it is not that they were unsuccessful in effectively mobilizing their tangible tools, but that they did not know how to best manage their human resources.

But success is possible. Take the system developed for a large county in California that involved more than 50,000 lines of Cobol. This project was delivered on time, within budget and without a single production failure due to logic error, and users did not detect a single error in any of the outputs.

IS professionals who hear this story often remark that it must have come out of *The National Star Inquirer*. Or they theorize that errors were not reported because the whistle-blowers would have been punished.

Why are successful IS projects viewed as freak

Kapur is president of the Center for Project Management and of the IS consulting firm Kapur and Associates, Inc. Both are based in San Ramon, Calif.

- **Users, execs getting wise to technology**
- **Successful projects need not be flukes**
- **More power to the people**

happenings? This kind of success should be the rule, not the exception.

What is required for project success is the implementation of far-reaching changes — in IS managers and in the running of your departments. If you take some specific, significant steps — as the California county IS group did — successful IS projects are attainable.

Resistance is high

But many in IS resist this challenge. You may, for instance, be inclined to think that it's just the "other guy" who is in trouble. If so, ask your project managers this question: "Are you willing to bet that your next project will be implemented on time, within budget and to user satisfaction?"

Others argue that these are acceptable circumstances and figures — that this is the best they can do. But would you consider it acceptable if 25% of buildings under construction, budgeted at $6 million each — roughly the cost of a 60,000-line software project — were abandoned before completion? Or, if 25% of a restaurant's food arrived inordinately late, had key ingredients missing and was billed at 100% above the menu prices?

Many in IS do not hold themselves to the same standards that executives in other professions do. Most information systems projects suffer from slipshod planning, outdated or nonexistent project notebooks, estimates that no one takes seriously, schedules that come from the Twilight Zone and progress reports that are, at best, a shot in the dark — all of which add up to some very expensive blunders.

Yet, IS keeps looking for the perfect gizmo to solve all its problems. Both IS and user managers have the misguided belief that the primary solution to their project failure problem is more sophisticated tools: 4GLs, CASE products, databases and scheduling and tracking systems.

In fact, talk to some people in the IS field about these problems and they will shake their heads in bewilderment and exclaim, "We tried structured techniques, but they didn't work." In many cases, structured techniques represent just another IS toy. Perhaps the following scenario will sound familiar:

The IS department is gathered for a lecture on implementation of structured methods. Suddenly, everyone sees the light. There is much weeping and enough resolutions to last for a dozen New Years. As the meeting breaks up, everyone wipes their eyes, gives the person next to them a warm hug, then heads to the computer center to see if there are any production failures.

But the next morning, it is back to normal. There is no change in day-to-day operations and the plan dies on the vine. Why? Human nature. People work hard to become comfortable, and change — even for the better — makes us nervous.

Spreading job burnout

Besides resistance to change, flawed software and low productivity are threatening to strangle the IS field. These problems largely exist because IS employees are not happy in their jobs. In fact, *Computerworld's* most recent job satisfaction survey of 940 IS professionals [CW, Sept. 12, 1988] provides some eye-opening conclusions:

- Ineffective management was the single biggest source of frustration.
- One of the most commonly cited problems was poor communication with management.
- Unfortunately, slightly more than half said they had considered changing professions.

For the next five to seven years, there is going to be a growing shortage of qualified, high-quality IS personnel. These people are demanding greater job satisfaction, and money is not the prime motivator. Recognition of accomplishments, the opportunity to improve their skills and the ability to develop error-free systems are high on their scale of values.

At the same time, many senior executives have their own complaints: They say they feel IS managers are unable to sell their ideas to them and to key users in an acceptable manner. IS people love to talk about technology, the executives say, but seem to have little understanding of the business of the organization. (See Executive Report, page 75 for further information on top executives' attitudes toward IS.)

In addition, users are also getting

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• Start meeting with your key user managers
• Start meeting with your IS staff, from supervisors to junior team members
• In 30 days, develop a plan to completely delegate 30% of your responsibilities
• Take 60 days to put your delegation plan into full action
• After 90 days, look for a marked improvement in your department's work environment and your employees' morale

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wiser to the goings-on of the IS department. They are no longer mystified by the technology and are beginning to openly question the performance and service they are receiving. These are person-to-person problems that call for a serious restructuring of IS priorities and procedures.

The person in the best position to undertake this restructuring — in fact, the only one — is the director of information systems. You need to ask yourself some important questions:

- "Am I perceived by corporate executives as their full partner in business?"
- "Do I adequately understand the business needs of our users?"
- "Am I in control of our operations, or do we most often run in crisis mode?"
- "Do my employees have a clear understanding of what they must do to advance within the organization?"

If you cannot answer each of these questions positively, there is a problem, and it may rest with your perception of your own role.

DO YOU explore organizational development and group dynamics? Do you attend lectures and join professional organizations?

The perfect IS director

What type of person must the IS director be? First and foremost, you must be astute in business and a good manager — a translator of the "computer lingo" to executive management and business strategy to the IS professionals. The best computer technician in the world can lead a company to ruin without appreciation of the realities of the business world.

In fact, even worse is to have an IS manager who has not ventured out of the computer center. But at the same time, you should be able to understand computer professionals and possess knowledge of the abilities, capabilities and limitations of the computer systems.

Tacked onto the wall of the IS manager's office should be this quote from one of today's well-known motivational business speakers: "The goal of must leaders is to cause people to feel reverence for the leader. The goal of the exceptional leader is to cause people to feel reverence for themselves."

Strengthening skills

It is time for some serious self-assessment in IS management. Take out paper and pen and grade your expertise in the following areas:

- Business knowledge.
- Management skills.
- Technological awareness.
- Commitment to excellence.

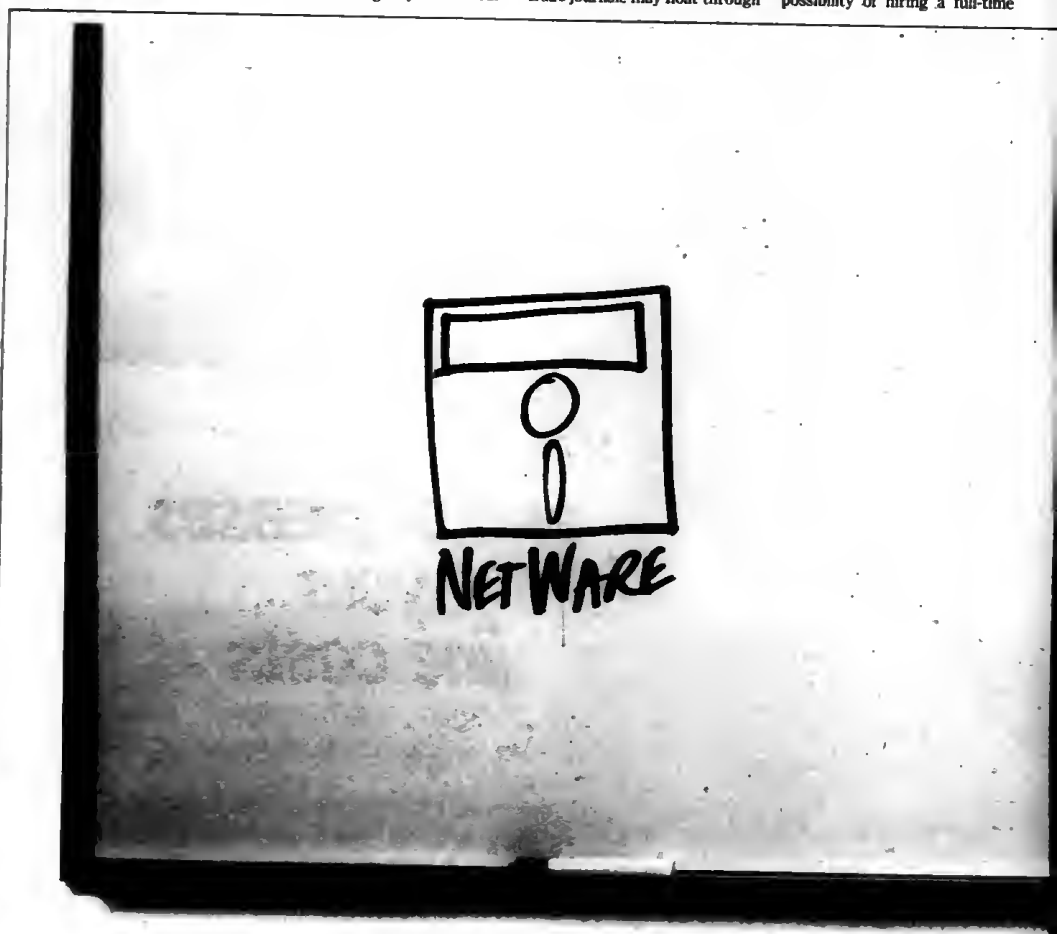
Doctors, lawyers and airline pilots are routinely required to upgrade their skills and knowledge. Because the state of the art changes so fast in the computer industry, continuing skills improvement are just as important for IS professionals.

Are you an avid reader of both trade publications and business journals? Do you take time to explore organizational development and the psychology of group dynamics? Do you attend symposia and lectures and join professional organizations? These are investments in your career. You will be surprised at how many others have faced the same challenges you are currently facing. Their experience and advice can help you immeasurably. You need to be certain that your level of knowledge is enough to maintain the status of a leading agent of change in your organization.

For instance, most IS organizations are woefully deficient in providing information to the staff. A few free publications and trade journals may float through the department, but worthwhile books, case histories, position papers and lecture abstracts are rarely kept and categorized.

Even notebooks from past projects should be collected. They can help make future plans and estimates more complete and accurate.

In addition, any sizable IS department should explore the possibility of hiring a full-time



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writer, not a technical writer, for the department. The writer should be available to the staff to help them develop and edit their written materials. Additionally, the writer could help with literature searches and the departmental newsletter.

If, after self-examination, you feel confident in your present level of expertise, consider the following outline of steps that have proven highly successful in creating an environment for successful project management:

IF MOST OF YOUR energies are spent just keeping the department's head above water . . . changing your department's work environment should be your first priority.

• **Empower yourself as the leader of the IS organization.** You will have to drag some people kicking and screaming to realize that drastic steps need to be taken for your department to run more efficiently. Be persuasive about your vision, and they will follow you.

• **Spend time with your executive manager to define the mission or charter of the IS department.** The size of your organization is absolutely no excuse for doing otherwise. By this time, word of changes within the department should be spreading through the organization. You will be in the optimum position to suggest both short- and long-range goals for IS.

• **Start meeting with your key user managers.** These meetings should not be held to fight fires or hash over old conflicts. There should be only three items on your agenda: a cross-cultural knowledge exchange, swapping and soliciting information that will be of mutual use and value; assessment of opportunities for improved performance from both sides; and planning for ways to take advantage of an improved service climate.

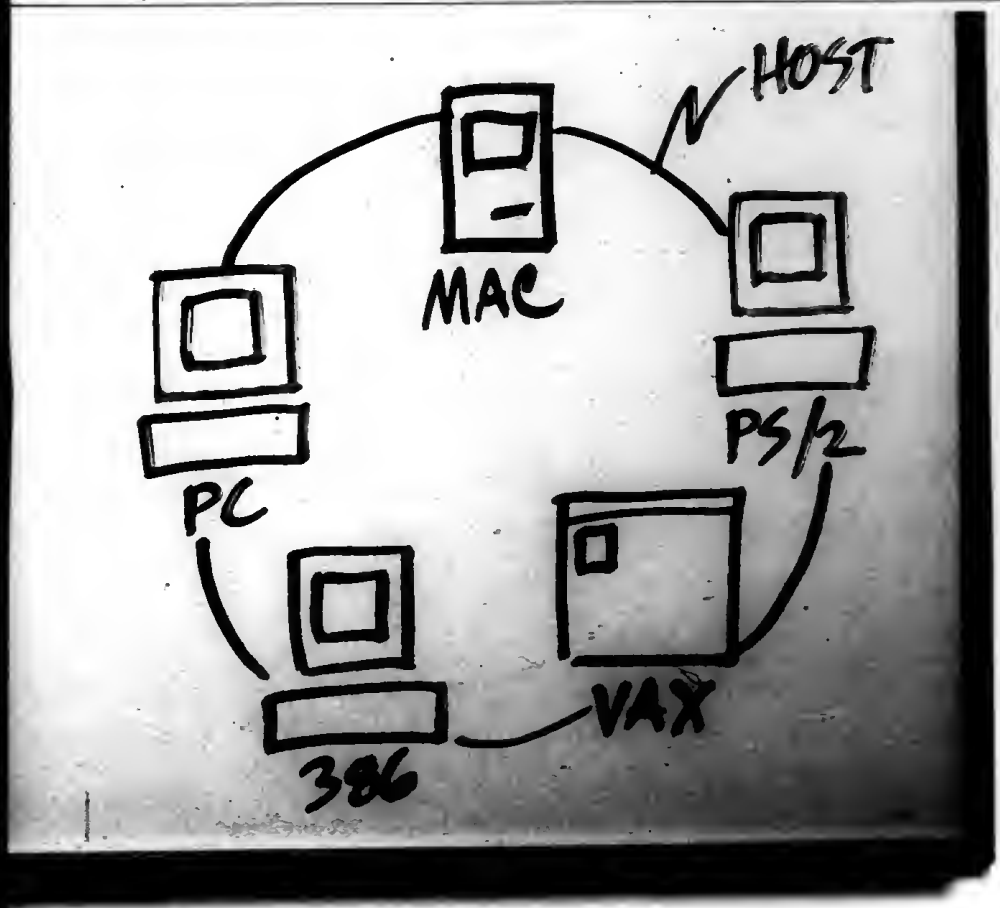
• **Start meeting with your IS staff, from supervisors to junior team members.** Again, do not meet just to fight fires. Your agenda should be to assess the department's current status, to plan for a more professional work environment and to assist in career-path planning, both for the short and the long term.

• **During the next 30 days, develop a plan to completely delegate 30% of your responsibilities and associated authority.** No, this is not an attempt to get you home by 5 p.m. each evening. In some organizations, as much as 60% of the IS executive's time is spent putting out fires. If most of your energies are spent just keeping the department's head above water, nothing new will be accomplished. Changing your department's work environment should be your first priority.

• **During the following 60 days, put your delegation plan into full action.** You have just become a salesman. If you cannot convince your staff that the greatest benefits will be to them as individuals, your plan will not work.

• **After 90 days, you should see a marked improvement in your department's work environment.** Morale will improve as people see that you are listening and plans are moving in a positive direction. It is time for more salesmanship: Build on your successes.

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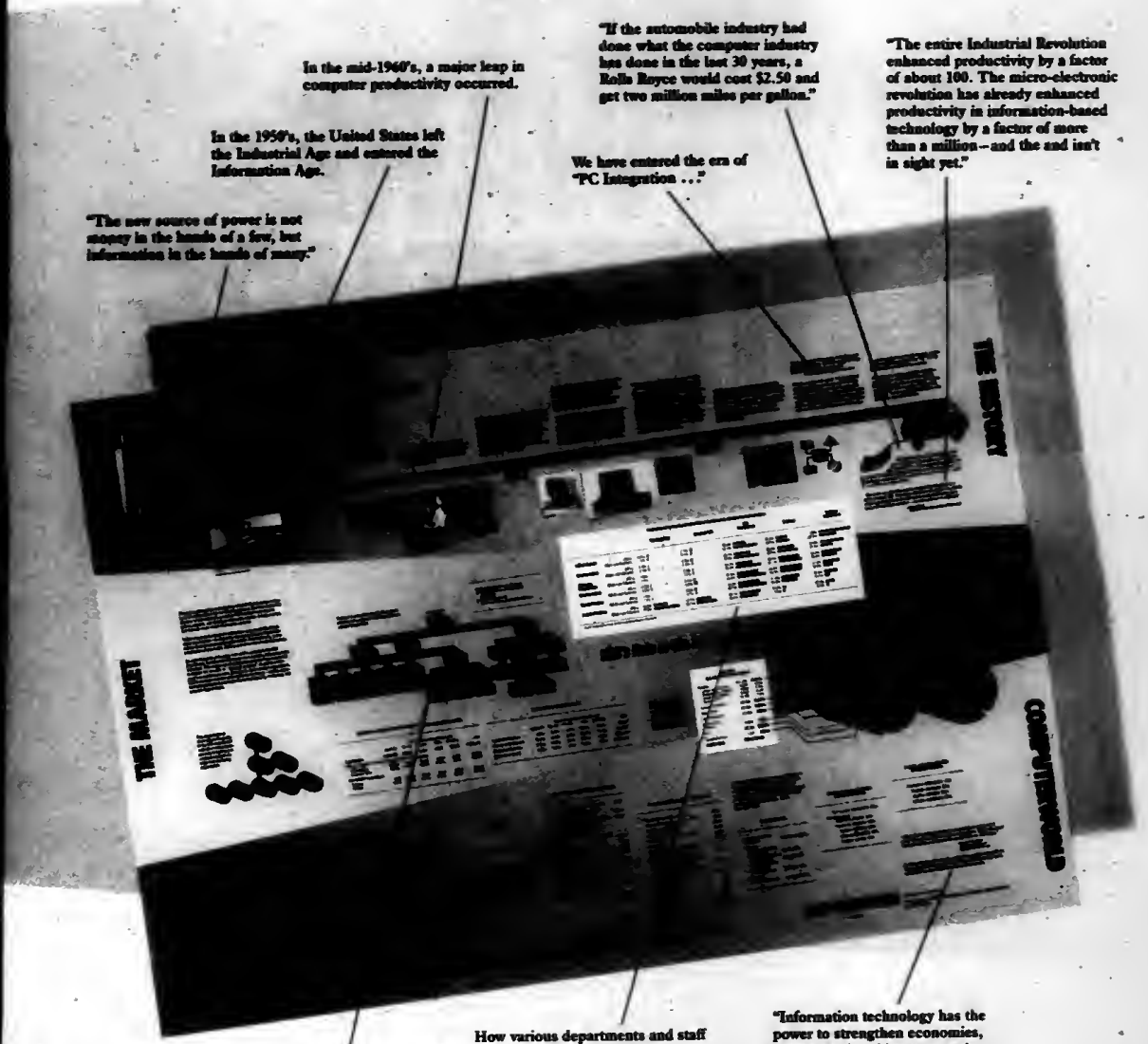
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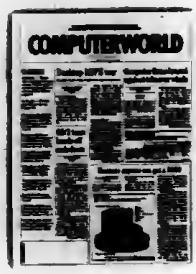
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To put everything in perspective, we have taken a brief look at where this young industry has been and how it is doing right now. It's all shown in the poster pictured here. Life size, it's 26″ by 38″, and it's full of interesting information on the new Information Age.



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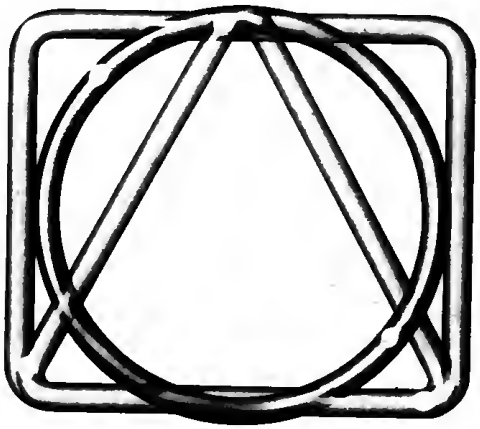


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INDUSTRY INSIGHT

Nell Margolis

Just say I don't know



"I don't know" is not the stuff of which bumper stickers are made. It sounds like an outtake from an Abbott and Costello routine. Actually, it's from a John Akers routine, and while it won't tell us Who's On First, it may shed light on What's What.

The fact is that the U.S. and its commercial and industrial might — particularly the computer industry — were built on risk. That risk presumes a lot of "I don't knows" by pioneers. What makes things so different today? What makes us think that our industry is on the way out, just because we can no longer chart with certainty what it will look like five years from now?

IBM Chairman Akers said "I don't know" to an auditorium full of securities analysts last month, only days after the company warned that its quarterly earnings would come in considerably below projection. "Will 1990 be a faster growth year than 1989?" he was asked.

"I don't know," the chairman said. "We can't forecast a *quarter* with great accuracy, as we've just demonstrated." Commercial life in the international

Continued on page 102

Foreign sales move front and center

BY NELL MARGOLIS
CW STAFF

The most surprising news about the quarterly earnings reports about to issue from the computer industry, one Wall Street analyst wryly noted last week, is that we've probably already heard the most startling news of 1989's first quarter — through warnings.

In light of the three largest industry players' recent previews of coming detractions, Shao Wang, an analyst at Smith Barney, Harris Upham & Co., said "The big question on everyone's mind after the recent bombshells from IBM, Digital Equipment Corp. and Unisys Corp. is going to be, 'How is the demand picture looking after the Ides of March?' "

Wang and other analysts added that the drearier the demand news is on the domestic front, the more the emphasis will fall on foreign sales.

Foreign sales will account for an average of 50% or more of first-quarter computer company revenue, said David Wu, an analyst at S. G. Warburg & Co.

"Foreign sales aren't a major factor," Wu said. "For most companies, they're the majority factor."

Flat U.S. revenue

For software firms, according to Paine Webber, Inc. analyst Bob Therrien, "the domestic market is less of an engine for revenues than it used to be. Just look at Microsoft Corp. — their international revenues are up significantly; their U.S. revenues are basically flat."

Ashton-Tate Corp., Therrien said, is showing international growth on a 26% compound annual basis.

"You can certainly see the importance of the international market in the minisupercomputer area," said Richard Shaffer, president of Technologic Partners, a New York-based

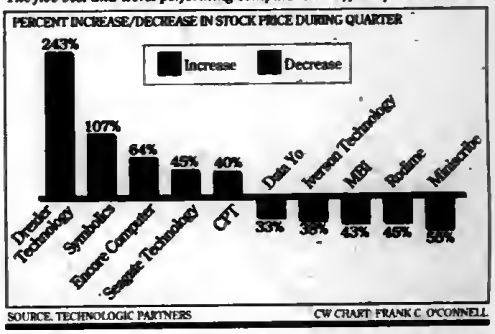
Continued on page 101

Inside

- **Adapso appoints new executive director. Page 98.**
- **Wyse has seen wiser days. Page 100.**
- **Banyan eyes initial public offering this fall. Page 105.**

How the chips fall - or rise

The five best and worst performing computer stocks, first-quarter 1989



SOURCE: TECHNOLOGIC PARTNERS — CW CHART: FRANK C. O'CONNELL

Xerox copies strong marketing arm

BY ROBERT MORAN
CW STAFF

If it works, don't fix it — broaden its market penetration. That was the spirit behind the formation of the Integrated Systems Division, a new marketing arm within the recently reorganized Xerox Corp.

What worked was the Custom Systems Division. Since its formation in 1987, the division has been awarded substantial contracts to integrate complex publishing systems — based on the Xerox 6085 Professional Computer Systems and other company hardware and software — with systems from numerous vendors installed within the U.S. Department of Defense.

The Integrated Systems Division, based in McLean, Va., is led by President Jay Nussbaum, former vice-president of the Custom Systems Division, who now reports to Xerox Executive Vice-President Wayland Hicks. Integrated Systems is in charge of marketing for the document business in North America and Europe and systems integration for the U.S. federal government and commercial accounts.



Xerox's Nussbaum

Although Xerox recently laid off approximately 2,000 employees, Nussbaum said that the division is "growing, not downsizing," and that he is looking for talent within that group of employees.

Despite its ambition to grow, the new division's movement into the commercial arena will be

Continued on page 105

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Bull Peripherals

Wollongong's tribulations provoke second-guessing

BY PATRICIA KEEFE
CW STAFF

PALO ALTO, Calif. — A tough third quarter combined with a series of missteps and personnel changes at Wollongong Group, Inc. have raised questions about the firm's management team.

The privately held supplier of Unix and Transmission Control Protocol/Internet Protocol software overhauled the executive suite last week and sold its Canadian and UK sales offices, which were purchased in December.

Among those exiting were two key technologists: Marshall Rose, a principal software engineer, and David Crocker, vice-president of engineering. Also, Ralph Marchitti, vice-president of marketing, sales and support, was stripped of marketing and support duties. Wollongong's marketing efforts have been criticized by sources close to the company.

Wollongong President Herbert Martin downplayed the changes, citing a string of 20 profitable quarters and a $9 million bankroll. "Any company can get fat. We watch the bottom line closely," Martin said.

Yet sources close to the company question the wisdom of expansion prior to what is traditionally Wollongong's worst quarter. Fiscal third-quarter revenue was 25% higher than the same period a year ago but was insufficient to support growth plans. Last month, Martin confirmed that aggressive expansion plans miscalculated incoming revenue [CW, March 6].

As a result, Wollongong laid off 15% of its work force — about 28 employees — despite money in the bank and Martin's comment that the layoff affected only 10% of the payroll.



Familiar face takes control of helm at Adapso

Adapso veteran Luanne James last week became the third executive director of the computer software and services industry association, replacing George T. DeBakey, who resigned late March.

James does not just succeed DeBakey; she preceded him as well, serving as Adapso's acting executive director from August 1986 to January 1987, when she became executive director of the Adapso Foundation, a nonprofit organization that brings computer technology to disabled users.

During the past two weeks, speculation among Adapso members has run high that the executive committee's ideal candidate would combine software industry experience with an insider's feel for Adapso and also have hands-on entrepreneurial experience. "After all," one longtime member said, "that's what Adapso is — a small, growing company. They want an executive director who'a walked a mile in their shoes."

James founded Argonaut Information Systems, Inc. in 1971 and sold it in 1983. Her goal, James said, is "to see that this industry gets a very aggressive agency, both powerful and effective."

NELL MARGOLIS

Italian pirates come under fire

WASHINGTON, D.C. — The Business Software Association (BSA) earlier this month announced unprecedented lawsuits against major Italian firms, charging them with extensive software piracy.

The copyright infringement suits were filed against three industrial companies: Elettrocarbonium S.p.A., Montedison S.p.A. and Montefibre S.p.A., an affiliate of Montedison. These firms allegedly made numerous copies of microcomputer software from BSA members Ashton-Tate Corp. and Lotus Development Corp.

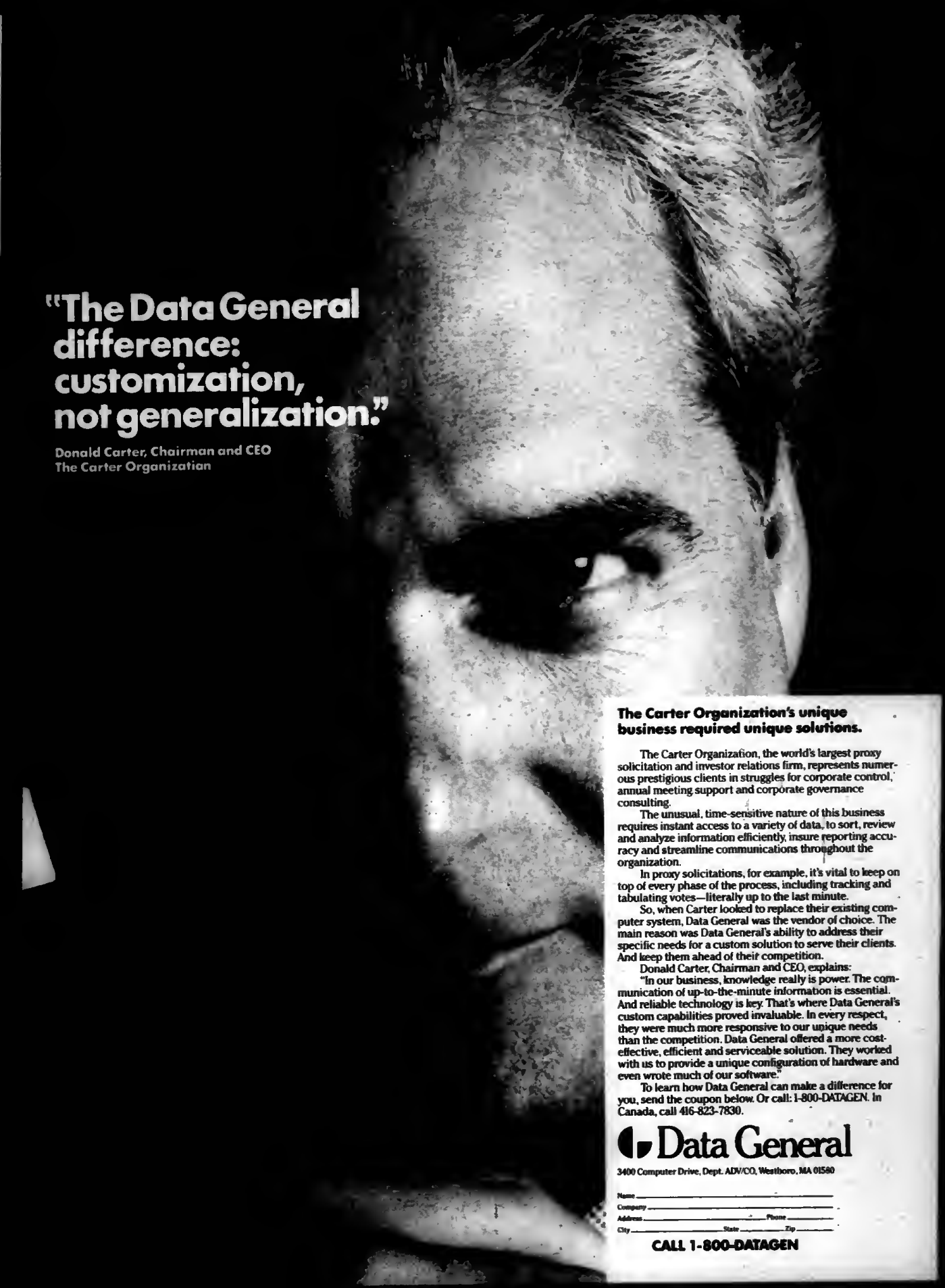
"The level of unauthorized copying of software in Italy — not only by dealers but by organizational users — is one of the most egregious in Europe," BSA President Douglas E. Phillips said in a statement at the Milan, Italy, press conference.

For example, a court-ordered surprise inspection at Montedison offices in Milan showed that more than 90% of the inspected software on the premises consisted of unauthorized copies, the BSA reported. In the past, Montedison has denied engaging in unauthorized copying.

Phillips said the lawsuits show the software industry "is carrying its fight against unauthorized software duplication from the streets of Asia to the offices of Europe." He praised the Italian courts for granting the special orders that allowed the secret inspections to occur.

The BSA, based in Washington, D.C., is a group of U.S.-based software companies fighting international piracy and trade barriers [CW, Oct. 17, 1988].

MITCH BETTS



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Once buoyant Wyse adjusts to choppy waters

BY JULIE PITTA
CW STAFF

SAN JOSE, Calif. — When Wyse Technology, Inc. co-founder Larry Lummis retired in early 1986, he left behind a thriving company. Wyse had become a leading supplier of VDTs, and its gamble to enter the personal computer business had paid off. Profits for the fiscal year ended March 31 had reached $12 million on sales of $171.3 million.

Neither Wyse's success nor Lummis' retirement turned out to be permanent.

Last September, Lummis returned to take the helm of Amdek Corp., becoming the fourth executive to lead the Wyse subsidiary. Amdek, a manufacturer of monitors for the retail market, was acquired three years ago so that Wyse could push its PCs through that channel. "It's been slow getting into the top-tier dealers," Lummis conceded.

By the time Lummis came back, Wyse itself was struggling. Sales of its PCs through OEMs and distributors were floundering. While other PC vendors had held the line during the height of the memory chip shortage, Wyse had raised prices. Ultimately, Wyse paid the price.

That was only the beginning of the bad news. By December, Wyse was facing its first quarterly loss — $15 million for the third quarter. Two price reductions — one in late August and the second in December — were not enough to resuscitate sales.


Wyse's Lummis

The new year of 1989 brought no respite. In January, Tandem Computers, Inc. dumped Wyse as an OEM PC supplier, opting instead for AST Research, Inc. The reason, said Wyse Vice-President of Marketing Jeff Hudson, was that the firm's PCs lacked the speed that Tandem needed. Wyse President Phil White left the company to take a job at database software firm Informix Systems, Inc. Wyse furloughed 15% of its work force and announced an expected 50% drop in revenue for the fourth quarter closing March 31 compared with the same time last year.

However, earlier this month, the company noted an upswing in fourth-quarter revenue, now projected at between $102 million and $107 million compared with the third quarter's $65.5 million. But the figure will mark a decrease from $141 million in fourth-quarter revenue in 1988, and Wyse is still anticipating a fourth-quarter net loss — its second consecutive quarterly shortfall.

Wyse officials have been refreshingly honest about their troubles. "Like other companies, we had our DRAM problems," Lummis said. "We raised prices to compensate for the high cost for memory and it caused a huge slowdown.

"When we realigned prices, we didn't do it quickly enough," he continued. "It's hard to believe that we could miss the kind of market indicators that we had."

Meanwhile, Wyse found itself lagging in new product development. To meet what was then growing demand, Wyse spent much of 1985 bringing a new product plant on-line. "We were building so much so fast that we had quality problems," said White. "That's why Wyse didn't bring out faster PCs. We were trying to clear up those problems before we could introduce anything new."


Wyse's Tse

The only bright spot in this gloomy picture is Wyse's distribution relationship with Businessland, Inc. Compaq Computer Corp. recently dropped Businessland, creating an opportunity for Wyse to fill the void. Early speculation had Businessland looking for another supplier to replace Compaq. With Businessland taking on Next, Inc.'s Unix-based workstation, that possibility seems less likely.

"Wyse has one advantage over the other PC vendors right now," said Michael Murphy, editor of the "California Technology Stockletter." "They have distribution through the guy that Compaq just dropped. Businessland has a real commitment to Wyse. But Wyse hasn't tended to introduce new products quickly. They'll need to change that to keep Businessland satisfied."

Keeping up with or exceeding the pace set by Compaq, considered the technological leader in the PC market, poses a challenge. Wyse strategy has been to let Compaq set the pace and come out with compatible products about six months later. During the height of its problems, Wyse even slipped that schedule.

Perhaps pressed by Businessland, Wyse is looking to alter its strategy. "I think we need to be the first or among the first with a new product," said Bernie Tse, Wyse co-founder and CEO.

Of the challenges ahead, Tse says the biggest may be adjusting to the realization that Wyse is in trouble. "After 20 consecutive quarters of success, it's a rude awakening," he maintained.

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Front and center

CONTINUED FROM PAGE 97

market research firm. One of the reasons that Convex Computer Corp. is leading the pack, he said, is the company's early establishment of a direct sales force in Europe.

Unisys, DEC and IBM have already addressed loudly and clearly the issue of the increasing importance of foreign earnings.

One contrary first-quarter entry, Wu pointed out, is Tandem Computers, Inc. The Cupertino, Calif.-based on-line transaction processor player, whose fourth-quarter financials presented one of the brighter spots in a blah-to-bleak landscape, issued one of the crop of warnings that first-quarter results would underperform Wall Street expectations.

Unlike its fellow warners, however, Tandem attributed its winter quarter woes to an unanticipated shortfall in Europe. First-quarter U.S. sales are up, Tandem said, continuing into its third consecutive quarter a trend that began last summer.

While analysts agree that a slowdown in foreign demand is inevitable in the long run, there was also general agreement that strong European and Asian economies, as well as a relative lack of market saturation, will make the run a long one — currency fluctuations notwithstanding. Will U.S. demand for large systems be waxing strong by the time foreign demand begins to wane? Reasonable minds differ.

"I think that there's a general sluggishness for the big stuff but not for all computer technology," Shaffer said.

"I don't see U.S. demand for large systems coming back," Wu said. "The world has moved to low-end, open systems. People have seen that they can get better price/performance at the lower end. What we're seeing is a generation gap."

To the purveyors of the large systems, for which he doubts demand will rebound, Wu emphatically advised, "IBM and DEC — go to the gym. Reorganize and decentralize. Downsize."

"THE BIG QUESTION on everyone's mind after the recent bombshells from IBM, Digital Equipment Corp. and Unisys Corp. is going to be, 'How is the demand picture looking after the Ides of March?' "

SHAO WANG
SMITH BARNEY

Foreign accent

Some companies, said Richard Shaffer, president of New York-based Technologic Partners, Inc., "exist *solely* because of foreign earnings." Drexler Technology, Inc. in San Jose, Calif., comes close.

The 20-year-old company, once a supplier to the semiconductor industry, now stands on the threshhold of a new market niche it hopes to pioneer: optical memory cards.

The product is not yet commercialized; Drexler was propelled to the top of the first-quarter computer stock performance heap by a $10 million initial payment on a second-sourcing contract with an undisclosed firm, according to Chief Financial Officer Steven Larson. First to market, Larson said, will probably be a medical information card.

Drexler currently has 26 licensees interested in its technology, and only four are U.S.-based. Moreover, Larson said, "The four U.S. licensees that we do have are basically inactive right now."

Not so the overseas contingent; Drexler's European licensees, joined by three of the Japanese companies that comprise about 50% of the total number of licensees, recently ended a 14-month project to develop optical memory card and machine standards, Larson said.

"The next step," he added, "is to get equipment manufacturers manufacturing equipment." The second-source agreement, he predicted, will encourage manufacturers who were reluctant to rely entirely on a sole supplier. One of the Japanese licensees expects to go into volume production sometime this summer, he noted.

"We're developing the technology here," he said, "but Europe and Asia are way ahead of the U.S. in interest." When Drexler talks to domestic companies, he claimed, "it's always, 'We'll wait and see what happens.' Foreign companies, on the other hand, are willing to put money into development."

NELL MARGOLIS



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Margolis

CONTINUED FROM PAGE 97

market is a new ball game for all, he observed. "Economists have all been wrong about the past several years. I have no idea what 1990 holds in store for us — and neither do they."

Akers was later praised for boldness and candor. Candid he was, and admirably so. But bold? Think how far the U.S. computer industry has regressed when a leader's admission that he has a vision, not a crystal ball — that he's guided by inner conviction, not quantitative certainty — is seen as a daring departure.

Our earliest childhood myths and legends were built on the notion that venturing into the unknown — knowing that you don't know but figuring that you'll find out — is the only way to get anywhere worth going. Davy Crockett was "King of the Wild Frontier," not "Chairman of the Board of Frontier Realty." The Little Engine won us by saying "I think I can," not "According to statistics supplied by two expensive consultants, one overworked CFO and countless reports from my executive information system, I am assured that there is a 97.2% chance that I can."

Thomas Jefferson knew that "I don't know" is an opening shot, not a declaration of defeat. Thomas Edison knew it. Heaven only knows IBM's Thomas Watson knew it.

How fast we've dropped so far. The passion for statistical certainty that smothers invention, seeks to insure rather than to build and cautions us that "dare" is a four-letter word is less than 20 years old. It has been blamed on the '60s, on the economy, on the nuclear threat, on business school mentality. Maybe it's time to stop speculating where it came from, start asking where it's going and cut it out.

Attention, certainty addicts: Just Say I Don't Know. The words only seem frightening because we are out of practice.

Maybe now that John Akers has stood up in front of a few hundred lean and hungry analysts and dared to say them, they'll come back into style.

Margolis is *Computerworld's* senior editor, industry.

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IN BRIEF

Back to basics

Aiming for exclusive focus on its core aerospace and defense business, **Lockheed Corp.** earlier this month reorganized its internal operations and hung For Sale signs on its **Calcomp** and **Cadam, Inc.** subsidiaries.

Bravo, Ashton-Tate

A San Francisco federal court ruled in favor of **Ashton-Tate Corp.** in the Torrance, Calif., company's dispute with Berkeley, Calif.-based **Bravo Technologies, Inc.** The suit concerned ownership rights to Ashton-Tate's Full Impact presentation spreadsheet program for Apple Computer, Inc.'s Macintosh machine.

The conflict arose after Ashton-Tate hired an independent software vendor who previously had worked with Bravo on a similar project. Bravo had argued that Ashton-Tate misappropriated trade secrets by using Bravo's technology in Full Impact.

Alumni notes

Ron Posner last week became chief executive officer of personal computer utility software company **Peter Norton Computing, Inc.** in Santa Monica, Calif. Posner, a former Ashton-Tate executive, also is an executive alumnus of Ansa Software and Borland International.

Hell no, he won't go

New York federal judge **David Edelstein** has denied **IBM's** request that he dismiss himself from **Allen-Myland, Inc.'s** antitrust case against the company. This is the third such request by IBM, which believes the judge to harbor personal prejudice against the computer giant — and the third denial.

. . . But he will

Former AT&T executive **James Edwards** has resigned as president of Boulder, Colo.-based communications software company **Telwatch, Inc.** to pursue other business interests. Edwards is succeeded at Telwatch by Paul Jerde, formerly the company's chief financial officer.

Charge it

Electronic Data Systems Corp. last week bought **Society Corp.** subsidiary **Bancsystems Association, Inc.**, a credit-card transaction processing company that serves 180 financial institutions, 2.4 million cardholders and 38,000 merchants across an eight-state region. Terms of the purchase were not disclosed.



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* The Wall Street Journal (1987) - "Survey of the Information Processing Marketplace".
* The Adams Co. (1988) - "Information Systems Management Study."

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Banyan eyes initial public offering for the fall

BY PATRICIA KEEFE
CW STAFF

WESTBORO, Mass. — Pumped up by an oversubscribed round of $8 million in financing, Banyan Systems, Inc. plans to go public late this year — market willing.

The ordinarily quiet developer of internetwork software and file servers seems to be on a roll. "There are not that many companies around with Banyan's [financial] record over the last four years," said David Strohm, a partner at Greylock, an investment firm based in Boston.

Ten quarters of profitability have enabled the company to double in size each of the last three years without spending a lot of capital, Strohm explained.

In an effort to maintain that momentum, Banyan co-founder David Mahoney is promising a lot of activity during the next three to six months. With bigger, better financed competitors closing in, he acknowledged the need to move forward at a faster pace than has been typical for the company [CW, April 10].

Two years to batten the hatches

This is good because a recent market report from Framingham, Mass.-based research firm International Data Corp. gives Banyan a window of roughly two years to fill some holes in its strategy and batten down the hatches.

Perhaps heeding that sentiment, Banyan will use its strong technical base to spring forward into "a more forceful approach" to the market, Mahoney said. Citing Oracle Corp.'s decision to put its SQL database on Banyan's server, he agreed it will take more of these partnerships to make Banyan a household name.

A good place to start may be connectivity to Digital Equipment Corp. systems — a pressing issue for many Banyan users. Company President Richard Meise indicated he plans to turn to an outside source to provide that capability.

"We will aggressively move on building [strategic relationships], but we won't do it the same way that 3Com and Novell have done it," Mahoney said.

Mahoney claimed Novell, Inc. and 3Com Corp. have opened up their environments just enough to enable third parties to say that their applications run on those networks.

Banyan claimed it fully integrates applications into its network software — for example, Oracle for Virtual Networking Software. Mahoney said this will be a requirement for distributing applications, which he predicted will be the primary attraction of networks in the 1990s.

Meanwhile, Banyan plans to coexist with Novell, given that Novell is likely to appear in accounts that it covets. "I don't want to be stopped because we don't interface with Novell," Meise said.

He pledged to link the two environments. "We don't want to bring Netware into our networks, but we have to connect into [Netware]. It's the only way we'll end up an organizationwide network."

Banyan will also continue its efforts to beef up service, support and distribution. Service has grown 135% over each of the last two years, Meise said. "The money is there to do it," Strohm said.

Adding to Banyan's future worries is the fact that most of its competitors loom over the diminutive firm in more than a few departments. The competition is better financed, has wider distribution, offers expansive support and can reap the benefits of greater name recognition and larger installed bases.

If any of these vendors, particularly 3Com and Novell, can manage to fully integrate standard protocols into their product lines, then they will be able to give Banyan a run for corporate accounts.

Xerox

CONTINUED FROM PAGE 97

slow, Nussbaum said, because the ground rules for its two markets are significantly different and the commercial sales force lacks experience in systems integration. "We don't have the sales expertise yet," Nussbaum said. "Our job is to get there. Over the next 18 to 20 months, we will have a more educated sales force."

In the interim, national account managers will attempt to open doors for technical experts to communicate the company's capabilities, which is a strategy used by the old Custom Systems Division. "Our federal government national account managers are probably 60% effective now," Nussbaum said. "It took them two years to get there."

Further, the division will focus its efforts on five industries — pharmaceutical, insurance, aerospace, defense contracting and utilities. These niches were chosen, Nussbaum said, for either their large archival needs or their operational commonalities with the government.

The pharmaceutical and insurance industries, however, have been hotbeds for vendors of document-imaging systems, which are based on optical technology. Rather than attempt to combat imaging systems vendors, Nussbaum said the division may even feature them in contracts. "We will not be the prime contractor in every operation," Nussbaum said. "In some situations, we will be a supplier or an exclusive subcontractor with other good integration houses."

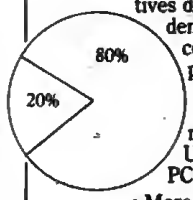
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SOURCE: The Adams Company 1988 Information Systems Management Study
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COMPUTERWORLD RESPONSE CARD DECKS

Technical writing gets respect

Managers disagree on who to hire, but some MIS vets have done well

BY JANET MASON
SPECIAL TO CW



Writing software documentation, which often has been relegated to programmers as an afterthought, is getting some recognition as a field in its own right.

In recent years, many universities and colleges have introduced technical writing programs. Meanwhile, the ranks of the Society for Technical Communication (STC) doubled during the past five years to 14,000 members in 120 chapters worldwide, according to William Stolgitis, executive director of the Washington, D.C.-based group.

Despite the increased emphasis on the field, however, relatively few computer professionals are entering it. According to Stolgitis, only 4% of STC members hold a degree in computer science. Marlene Miller, a member of the Atlanta chapter, says that 13% of its members formerly worked in data processing. The rest come from a variety of backgrounds, including teaching, journalism, banking and government. But people in the documentation field disagree whether MIS professionals make good technical writers.

Ron Miskie, president of the Association of Documentation Specialists in New York, maintains that companies are looking for people with an MIS background to fill their documentation positions. "Former programmers have the edge as technical writers because they have to go into the code to write the documentation," he says.

Writing secondary

Large vendors such as AT&T, IBM and Digital Equipment Corp. also look for people with programming backgrounds to fill their technical writing positions, Miskie says. "These companies look for people with the appropriate technical backgrounds and then train them in their own writing methodology," he says.

However, sometimes moving to technical writing from MIS work such as programming is viewed as a downward move. "Here, a move from programming to documentation would be considered a step down in salary and status, and that would go against our corporate culture," says Kirk Sterling, assistant vice-president in charge of documentation services at Shearson Lehman Hutton, Inc.

All of Shearson's technical writers come from nontechnical backgrounds, Sterling says. The idea is that the writers should not know too much about a system's technology in order to document it for nontechnical users.

End users can find themselves well positioned to move into documentation writing. Miller, a technical writer at National Computer Systems, Inc. in Atlanta, began documenting the company's trust asset management software after using similar systems in her position as a bank operations officer.

Fred Jones, director of project management at Document Development, Inc. in New York, advises prospective technical writers to promote themselves on the basis of a dual specialty. "The best thing to do is to market yourself as having business expertise as well as technical skills," he says. "If you have knowledge of the banking industry along with programming skills, chances are the bank will find you a strong candidate for a career in documentation."

Some people who have moved to technical writing from MIS positions say they have found greater job satisfaction in exercising creativity and communications skills. They also acknowledge that there is some truth to the contention that people leaving MIS for documentation must take a cut in pay.

Jay Humphries, formerly a programmer and systems manager and now a contract technical writer at The Write People in Atlanta, emphasizes that becoming a documentation writer can mark a career change for an MIS professional. "I had to learn totally new skills, bite the bullet and take a salary cut for about two years," he says. Thereafter, he surpassed his former salary. He estimates that based on his technical background, he earns about 30% more than his nontechnical peers.

> "FORMER programmers have the edge as technical writers because they have to go into the code to write the documentation."
>
> RON MISKIE
> ASSOCIATION OF DOCUMENTATION SPECIALISTS

Career upheaval has had its rewards for Humphries. After working in the MIS field for five years starting in 1971, he started documenting a system his company developed and found he had a flair for it.

"After the [documentation] project was over, I had to go back to the bits and bytes of programming and was frustrated that I couldn't write anymore," Humphries says. As a result, he decided to find a job as a documentation writer elsewhere.

Like Humphries, people in MIS with a penchant for writing often get started in documentation with a system that they helped develop but then must change jobs to pursue technical writing, Miskie says. He advises them to take courses at colleges, universities and other educational organizations.

Jones, a programmer/analyst-turned-technical-writer, says he tired of programming and systems analysis and was drawn to the "more intellectually challenging" job of documentation writer.

In documentation, he has found greater opportunity to define problems and present issues than as a programmer/analyst. Now as a manager of technical writers, he commands the same salary, if not more, than if he had stayed in MIS.

Miller says her position as a technical writer affords her a certain autonomy in her work and a sense of accomplishment.

One problem that Miller and other technical writers experience is that documentation often is not considered until after a system is developed. "We need to be part of the overall development process," Miller says. Slowly, she says, that change is taking place.

Mason is a Philadelphia-based freelance journalist.

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April - May - June

4/24 - **Executive Report:** Managing after a Merger

5/1 - **Product Spotlight:** Network Management Tools

5/8 - **Executive Report:** Automating the Data Center

5/15 - **Product Spotlight:** Manufacturing Technology

5/22 - **Executive Report:** Restructuring MIS - Distributing Resources

5/19 - **Product Spotlight:** Printers & Plotters

6/5 - **Special Feature:** Systems Integration
Executive Report: Workgroup Computing

6/12 - **Executive Report:** Technology Issues in Downsizing

6/19 - **Product Spotlight:** Miro DBMS

6/26 - **Executive Report:** Restructuring MIS - Organizational Impact of Downsizing

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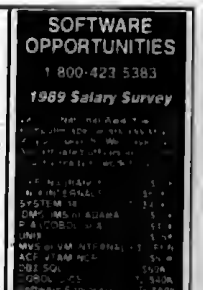
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Interested applicants contact the Oklahoma Employment Security Commission (72CD), 3105 E. Skelly Drive, Tulsa, Oklahoma 74105-7202. Phone: (918) 749-6861. Refer to job order number 081118. Ad paid by an Equal Employment Opportunity Employer.

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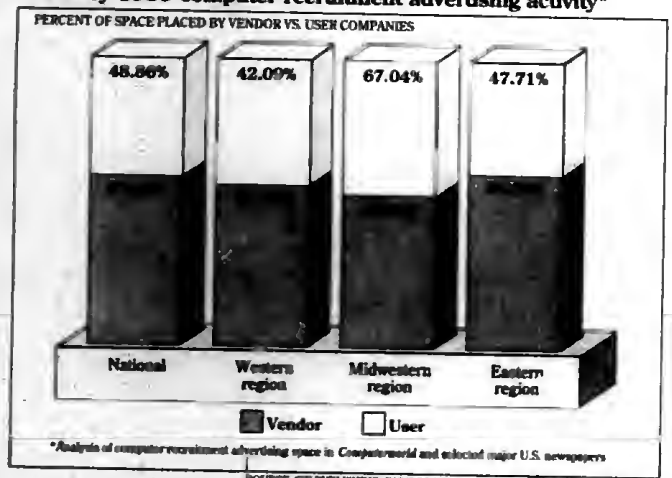
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CAREER INDEX

February 1989 computer recruitment advertising activity*



*Analysis of computer recruitment advertising space in *Computerworld* and selected major U.S. newspapers

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MARKETPLACE

Pros and cons of PC fax boards

Their benefits may not outweigh the usefulness of traditional fax machines

BY DAVID GABEL
SPECIAL TO CW

There is no denying the popularity of facsimile machines; almost everyone has one now.

The machines are so popular that radio music shows are taking requests by fax. Talk show hosts are using fax machines to get listeners' graphical input.

The latest fax machines can send a page in much less than a minute, so junk fax is likely to become as bothersome as junk mail. Firms are even publishing fax phone directories. The list goes on and on.

Now there is a new kid on the block: the personal computer fax board. Some of these boards offer many of the benefits of traditional fax machines at a lower price, with the added attraction of allowing the user to send and receive information from his PC.

However, fax boards can present serious drawbacks. Boards can be slower than the typical fax machine and tie up the computer. Furthermore, while the boards can send computer files, they must be used with a scanner to transmit hard copy. Unfortunately, not all of the boards offer such an option.

According to CAP International, Inc., a market research firm in Norwell, Mass., 40,000 boards were sold in 1988. The figure is expected to jump to 92,000 by the end of 1989 and 178,000 in 1990.

One major benefit of the fax board is the price. Some products only cost about $500 for the board and software, compared with the $2,000 price tag of a typical fax machine. Faster and more sophisticated boards may cost $1,200.

Handy tools

Perhaps more important is convenience. Fax boards that plug into IBM Personal Computers and compatibles can transmit a text file directly from the computer's memory. With a traditional fax machine, the user must print the file and send that document via the fax machine. With a fax board, the printing step is eliminated — a feature of particular value when slow-printing graphical files are involved.

Some fax boards can capture documents on their way to a printer and fax them at the same time. This allows the user to get a hard copy of the fax without an added step.

To varying degrees, fax boards offer additional capabilities such as scheduling transmissions; distributing to multiple locations; repeating calls that are not completed; maintaining logs of sent and received faxes; and storing fax numbers in memory.

However, while PC users can save some money by equipping themselves with a fax board, they must be aware that the boards have limitations.

The less expensive boards run at only 4.8K bit/sec., half the top speed of most current fax machines. Although the boards can communicate with these machines, they do so at a much slower rate.

Some fax boards can receive transmissions from other machines in "background" mode, meaning they will send and receive files without interrupting simultaneous functions on the computer at that time. The other boards demand that the PC is dedicated to the fax operations while sending or receiving.

Some fax boards have a built-in scanner port. The port allows the user to attach a scanner that can capture a document or image that the fax board can transmit. Without the port and scanner, the fax board is limited to transmitting files already in the computer.

Only a few fax boards are equipped with optical character recognition software that is capable of converting a received file into an ASCII text file. Without this capability, received files remain in image form, and the user can only edit them using a paint program. This is an arduous task. If the fax system can convert to ASCII, users can edit received files with a word processor.

Also, for users who need a hard copy of the graphical fax document, it is possible to print out the fax file. However, it can take from five to 10 minutes to print out a single page that has not been converted to ASCII.

Be traditional?

For regular handling of longer documents, a traditional fax machine is likely to be a better alternative.

Finally, there is the problem of communications ports. Releases of DOS earlier than 3.0 can only support two ports.

Many users attach a modem to one port and a mouse to the other, allowing no room for the fax board. For this reason, many boards have a built-in Hayes-compatible modem, allowing the user to use the two communications ports for other devices.

Gabel is a free-lance writer based in Northport, N.Y.

What do you really need?

Questions to consider when purchasing a PC fax board

- Does it operate in the background?
- Does it run at 9.6K bit/sec. or faster?
- Does it include a scanner port?
- Does the software have optical character recognition capabilities?
- Does it include a modem?

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Index

Marketplace 114
Used/Lease/Rent 114
Hardware 118
Software 118
Peripherals/Supplies 118
Graphics/Desk Top Pub 118
Time/Services 119
Bids/Proposals/Real Estate 118
Business Opportunities 119
Training 120

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AT Model 099	$1,775	$2,000	$1,525
AT Model 239	$1,775	$2,100	$1,775
AT Model 339	$2,100	$2,375	$1,800
PS/2 Model 30	$1,425	$1,550	$1,000
PS/2 Model 50	$2,100	$2,400	$1,900
Compaq Portable I	$650	$750	$550
Portable II	$1,900	$2,100	$1,750
Portable III	$2,750	$2,950	$2,500
Portable 286	$1,700	$1,975	$1,675
Plus	$1,050	$1,250	$900
Deskpro 286	$2,100	$2,350	$1,800
Deskpro 386	$3,700	$3,975	$3,675
Apple Macintosh 512	$625	$775	$550
512E	$800	$975	$600
Plus	$1,025	$1,225	$1,000
II	$4,125	$4,450	$3,425
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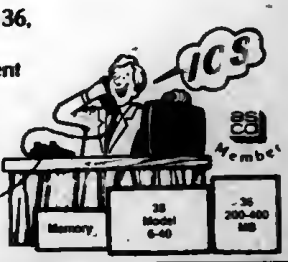
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Request for Proposal No. 1886, due Friday, April 28, 1989 at 3:30 p.m. for the acquisition of a local area network for the Academic Computer Science Department at PEARL RIVER COMMUNITY COLLEGE.

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Evaluating training vendors

Pursue details of the process before, during and after instruction

BY MARK DUNCAN
SPECIAL TO CW

Data processing managers charged with providing training want to be confident that vendors satisfy their requirements comfortably and cost-effectively. Evaluations of the vast number of available vendors must be based on fundamental criteria applicable before, during and after service is delivered.

A poor-quality or unattractive brochure is probably destined for a speedy journey to the trash can. The first few meetings with the marketing representative are similarly important: Is he there simply to sell you a product or to truly understand your training requirements? Does he do more talking than listening? Is he professional, articulate and sincere? Do his offerings and his presentation address what you are looking for? A vendor must manifest clearly that he understands and respects a company's uniqueness and can conduct business accordingly.

The most practical way of determining training needs is with a needs analysis, but often data processing managers do not possess the time, resources or knowledge to conduct one. One measure of comprehensiveness of service is the vendor's willingness to conduct initial and periodic needs analyses to help with curriculum planning and budgeting.

Preview materials

If the training is in the form of media such as video, audio, computer-based training or texts, the quality of materials is easily determined by previewing them. The best training material should not only be useful during the period of training, but it should also continue to serve as a reference manual.

If the training is on-site and instructor-led, two further criteria may be applied — the instructor's preparedness and client testimonials.

A diligent and conscientious instructor will inquire and set up in advance such things as computer access for himself and canned examples for the workshop sessions.

If the instructor arrives on the first morning of class and is utterly amazed that there is only one terminal for every two students, or that internal security procedures require his computer access to be authorized 24 hours in advance, or that logistics force him to alternate his morning and afternoon sessions between two rooms, then he is certainly not worth his salt.

In the case of instructor-led training, students are the best source of evaluations. Whether the evaluations are positive or negative, the majority of students generally hold the same opinions.

For leased or purchased training, how satisfactory is the support? When you call with problems or questions, do you get immediate answers, or do you too frequently get the "I'll call you back" response?

While the delay is often legitimate, it is sometimes also indicative of an absence of qualified support resources, or ones that are spread too thinly for the client population.

The other pleasant extreme, of course, is support staff whose solicitude regarding the relationship between you and their product prompts them to call periodically to ensure that there are no problems.

What is the vendor's or instructor's willingness to work with whatever limitations your environment presents? The variations among training vendors are probably matched by the range of training needs of DP organizations. Some companies boast the luxury of mature training functions with dedicated resources and healthy budgets. Others must fight for meager opportunities and then make do with what little they win.

Open communications

Similarly, training is not a finite activity with a clear beginning and ending point. It is rare to find a student who knows how to apply everything he has learned in a class. There is a greater likelihood that he will find more penetrating questions as he begins applying his newly acquired knowledge. To that end, a conscientious training vendor will leave a line of communication open.

How many vendors share with a particular client the results of his evaluation forms? If the evaluation is good, the vendor should jump at the chance of advertising such comments; if the evaluation is poor or had constructive suggestions for improvement, the vendor should at least acknowledge the criticisms. Furthermore, as incentive for repeat business, the vendor should guarantee the client that suggested improvements will be incorporated when possible.

Finally, the mirror image of a needs analysis is an "objectives met" analysis, when the vendor solicits input from the client on how well his training objectives were met. The vendor should be prepared to remedy any deficiencies, especially if they involve standards agreed on beforehand. This arrangement will encourage the vendor to do the job right the first time.

Naturally, there is some overlap among the before, during and after periods, and one criterion may be applied more than once. The criteria described above are not meant as an exhaustive list. No criterion, however small, can be legitimately discarded. Cumulatively, trivial service festures may make the difference between client satisfaction and dissatisfaction.

Duncan is a quality assurance consultant at a large Dallas bank.

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Preparing the RFP for Training Services

May 1st

Training the experienced with a new environment

May 8th

Assessing Training needs based on changes in technology and the workforce

May 15th

UNIX Training - what is most appropriate

May 22nd

Varied Training Media demanded by technologies and economics of the '90's

May 29th

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WASHINGTON, D.C.: Regional Vice-President East/Bernie Hockswender District Manager/Paula Smith, **COMPUTERWORLD** Paramus Plaza I, 140 Route 17 North, Paramus, NJ 07652 (201) 967-1350

Classified Advertising Director/John Corrigan, 375 Cochituate Rd., Framingham, MA (508) 879-0700

Midwest Account Manager/Marie Keyes, 375 Cochituate Rd., Box 9171, Framingham, MA 01701-9171, (508) 879-0700

New England Account Manager/Paul Bonamgo, 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171 (508) 879-0700

Western Account Manager/Karen Massmino 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171 (508) 879-0700

RECRUITMENT ADVERTISING SALES OFFICES:

New England Recruitment Manager/Nancy Percival 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171 (508) 879-0700

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Midwest Recruitment Manager/Patricia Powers O Hare Corporate Tower One, 10400 West Higgins Road, Suite 300, Rosemont, IL 60018 (312) 827-4433

Western Recruitment Manager/Barbara Murphy, 18008 Skypark Circle, Suite 145 Irvine, CA 92714 (714) 250-0164

South-Atlantic Recruitment Manager/Kathryn Kress 8304 Professional Hill Dr. Fairfax VA 22031 (703) 573-4115

Recruitment Account Executives New England/Andrew Rowe Mid-Atlantic/Jay Novack, South Atlantic/Paulette Smith, Midwest/Ellen Casey, Western/Chris Glenn 1-800-343-6474 or (508) 879-0700

IDG INTERNATIONAL MARKETING SERVICES: Managing Director/Frank Cutitta, **COMPUTERWORLD**, 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171 (508) 879-0700

West Coast Marketing Manager/Leslie Barner 3350 West Bayshore Road, Suite 201 Palo Alto CA 94303 (415) 424-1001

CW PUBLISHING/INC.

An IDG Communications Company

Fritz Landmann/President

Computerworld Headquarters: 375 Cochituate Road, P.O. Box 9171, Framingham, MA 01701-9171
Phone: 508-879-0700 Telex: 95-1153, FAX: 508-872-8564

Senior Vice-President/Associate Publisher, Val Land

OPERATIONS Vice President/Operations, Matthew Smith **Business Manager** Mark Sullivan
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FOREIGN EDITORIAL/SALES OFFICES

Argentina: Ruben Argento, CW Communicaciones S/A, Av. Belgrano 406-Piso 9, CP 1092 Buenos Aires, Phone: (011) 54 1 34-5283 Telex: (390) 22684 (BAZAN AR).

Asia: S.W. Chan, Asian Computerworld Communications Ltd. 701-4 Kam Chung Bldg., 54 Jaffe Road, Wanchai, Hong Kong, Phone: (011) 852 9 861 3238, Telex: (780) 73827 (COMASIA HX) FAX (011) 852 5 86 10953.

Australia: Alan Reiner, Computerworld Pty. Ltd., 37-43 Alexander Street, Crows Nest, NSW 2065, Phone: (011) 61 2 4395133 Telex: (790) AA74752 (COMMON), FAX: (011) 61 2 439 5512.

Austria: Heimo Rhea, CW Publikations GmbH, Untere Donau str. B.N. Zeughaeuser S. A-1070 Wien, Austria, Phone: (011) 43 93 16 31 0 or (011) 43-93-05-08-0 Telex: 115542 SOVA, FAX: (011) 43-93-05-08-33.

Brazil: Ivay Knoll, Computerworld do Brasil Ltda, Praca Pio Xaxier, 19/26 Andar, CEP 20031 Rio de Janeiro, Phone: (011) 55 21 240-8226 Telex: (391) 21 30830 pin

Denmark: Preben Engell, Computerworld Danmark A/S, Torvegade 52, 1400 Copenhagen K, Denmark, Phone: (011) 45 1955 695, Telex: (854) 31366, FAX: (011) 45 154 86 19

France: Francois Chalaupremont, Computerworld Communications S.A., 185 Avenue Charles De Gaulle 92200 Neuilly Sur Seine, France, Phone: (011) 33 1a 747 1272, Telex: (842) 613234 F, FAX: (011) 33 14 2415 52

Hungary: Dezso Futasz, Computerworld Informatika Co., KFI PI 388, 1536 Budapest, Hungary, Phone: (011) 36 1 228 456, Telex: (861) 22 6307 (KSH H).

Italy: Umberto Costamagna, Computer Publishing Group S.R.L., Via Iseo 7, 20127 Milano, Italy, Phone: (011) 39-2 3613432, Telex: (843) 335318, FAX: (011) 39 2 262 0885.

Japan: Dan Yamashita, Computerworld Japan, Akasaka Oneclimb Bldg., Minato-Ku, Tokyo 107, Phone: (011) 81 3 551 3882 Telex: (781) 252-4217 FAX: (011) 81 3 582 7238

M. Nakamura, IDG Communications, Japan, c/o Maruzen International, Inc., Akasaka Center Building, 1-3-12 Motoakasaka, Minato-ku, Tokyo 107, Japan Phone: (011) 81 3 403-8819 Telex: (781) 227941 (mpa fa) or (for CW Publishing publications except Computerworld Japan).

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New Zealand: Martin Taylor, Computerworld Communications Ltd. 2nd Floor 15 Augustus Terrace, Parnell Auckland, New Zealand Phone: (011) 64-9-779-902 Fax (011) 64 9 776 804

Norway: Masses Hansen, CW Norge A/S, Hovenveien 43, 0578, Oslo 5, Norway, Phone: (011) 472 647725 Telex (856) 75476 (CW NOR N), FAX: (011) 47 266 0152.

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Sweden: Bengt Wennblad, CW Communications AB, Sodra Hamngatan 22, S-115 41 Stockholm, Sweden Phone: (011) 46 8 67 91 80 Telex: (854) 14904 9 (NOMACW) FAX: (011) 46 8 65 3132

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Taiwan: Lorna Wang, ACE Media Agency Co. Ltd. P.O. Box 26-578, Taipei 5038 1 Fu Hsin, S. Road Sec 1, Taipei, Taiwan, R.O.C. Phone: (011) 886 2 721 4322 Telex: (785) 14162 (ACE GROUP) (Representative for all CWCI publications), FAX: (011) 886 2 731 0420

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West Germany: Eckhard Ulpmeier, CW Publikationen Verlagsgesellschaft mbH, Rheinstrasse 75/28, Postfach 40 0429, 8000 Munich 40, West Germany Phone: (011) 49 89 360860, Telex: (841) 5215350 (COMW D), FAX (011) 49 89 3 60 86109

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ADVERTISERS INDEX

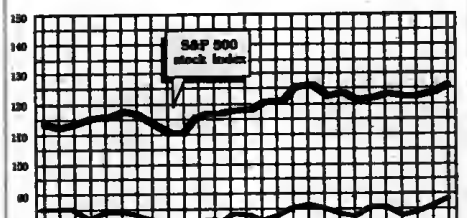
Al Corp.	24	KMW Systems	66
Ameritech	10	Knowledgeware	C3
Andersen Consulting	70	Lotus Development Corp.	52-53
Attachmate Corp.	104	Mansfield Software	44
AT&T	22-23,31,68-69	McDonnell Douglas	30
Bull Peripherals	97	Micro Focus	35
Bull Worldwide Information Systems	64-65	Morino Associates	14
Cincom Systems	58	Novell	92-93
Cognos	71,73	Nynex	38
Compaq Computer	86-87	Oracle Corp.	9,11,13
Computer Associates	3,79,80-81	Pilot Executive Software	28
CW Card Deck	105	Prime Computer	33,48-49
CW Circulation	103	Progress Software	46
CW Conference	100	Racal-Milgo	62-63
CW Testimonial	72	Radio Shack	98
Data General Corp.	99	Realia	32
Data Group	17	Relational Technology, Inc.	20
DCA	54-55	SAS Institute	74
Digital Equipment Corp.	16	SDI	17
Duquesne Systems	96	Seed Software	78
European Software Nursery	14	Siemens	34
Expoconsul International, Inc.	102	Software AG	26
Fischer International	21	Sun Microsystems	39,40-43
Fujitsu	56,91	Syncsort	5
Hewlett Packard	59,60-61	Synoptics	12
IBM	36,50-51	TBS Software	53
IDC Corporation	88	3 Com Corporation	45,47
Information Builders	C4	Trax Softworks, Inc.	44
Informix Software, Inc.	15	Unisys	84-85
Innovation Data Processing	7	US Robotics	101
Intel Corporation	27,29	Vitalink	82
Interlink Computer Sciences	90	Wrightline	44

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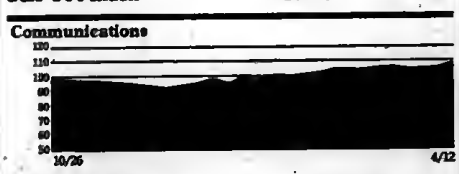
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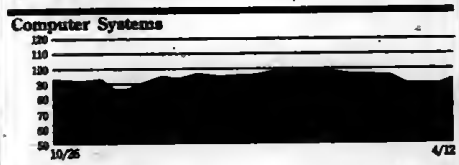
Issue Date	Executive Reports	Product Spotlights
Apr. 24	Managing after a Merger	
May 1		Network Management Tools
May 8	Automating the Data Center	
May 15		Manufacturing Technology
May 22	Restructuring MIS — Distributing Resources	
May 29		Printers & Plotters

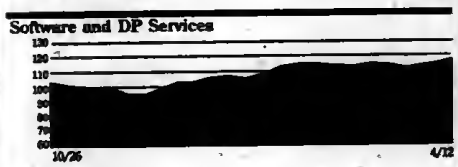
STOCK TRADING INDEX

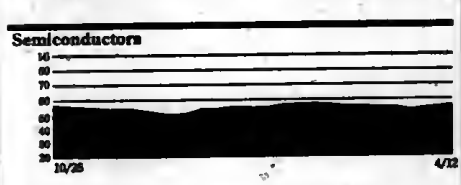


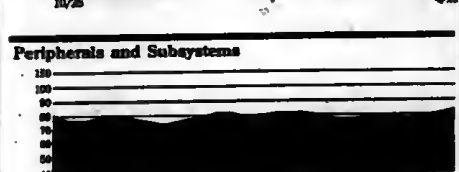
Indexes	Last Week	This Week
Communications	106.0	108.9
Computer Systems	89.9	93.4
Software & DP Services	113.4	118.0
Semiconductors	53.7	56.7
Peripherals & Subsystems	80.0	82.1
Leasing Companies	120.8	114.1
Composite Index	86.8	88.7
S&P 500 Index	124.5	125.8

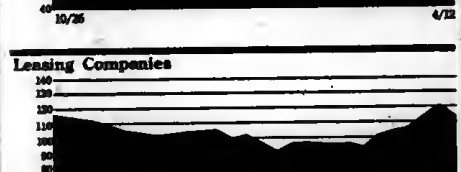












Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, APRIL 12, 1989

EXCH		52-WEEK RANGE (1)		PRICE CLOSE APRIL 12, 1989	WEEK NET CHANGE	WEEK PCT CHANGE
Communications and Network Services						
N	AMERICAN INFO TECHS CORP	53	42	51.25	-0.5	-1.0
Q	ANDREW CORP	22	15	18.5	-0.3	-2.6
Q	ARTEL COMM CORP	5	1	4.938	1.4	41.1
N	AT&T	38	26	31.25	0.0	0.0
Q	AVANT GARDE COMP INC	3	0	0.8	0.1	14.2
Q	AVANTEK INC	9	4	5.75	0.1	2.3
N	AYDIN CORP	18	18	18.75	0.1	0.8
N	BELL ATLANTIC CORP	77	64	75.75	-0.4	-0.5
N	BELLSOUTH CORP	44	35	41.625	-0.5	-1.2
Q	COMPRESSION LABS INC	5	3	5.375	0.8	18.2
Q	COMPUTER NETWORK TECH	2	1	1.407	-0.1	-4.3
Q	CONTEL CORP	57	31	52.75	-0.1	-0.3
Q	DATA SWITCH CORP	9	5	5	-0.4	-7.5
Q	DIGITAL COMM ASSOC	26	17	20.25	2.4	13.5
Q	DYNATECH CORP	26	17	18.25	0.8	1.4
Q	FIBRONICS INTERNATIONAL INC	5	5	4.75	-0.3	-5.3
Q	GANDALF TECHNOLOGIES	9	4	4.5	-0.1	-2.7
Q	GENERAL DATACOMM INDS	5	5	5.75	0.0	0.0
N	GTE CORP	46	36	45.25	-0.1	-0.3
Q	HARRIS/3M SYS CORP	14	9	10	0.8	2.6
N	ITT CORP	97	45	55.625	0.9	1.6
N	M A COM INC	11	5	7.5	-0.3	-3.2
Q	MCI COMMUNICATIONS CORP	31	12	30.125	0.8	6.1
Q	NETWORK EQUIPMENT TECH INC	25	14	24.25	2.3	10.2
Q	NETWORK SYS CORP	12	9	9.125	-0.3	-5.2
N	NORTHERN TELECOM LTD	35	14	16.5	-0.4	-2.5
Q	OCTEL INC	39	17	32.625	0.9	5.7
N	NYNEX CORP	72	61	71.75	-0.3	-0.3
N	PACIFIC TELESIS GROUP	36	27	30.125	1.1	3.2
A	PENRIL CORP	5	4	4.625	0.0	0.0
N	PLESSEY PLC	56	25	44	1.5	6.5
N	SCIENTIFIC ATLANTA INC	15	10	14.875	0.8	5.3
N	SOUTHWESTERN BELL CORP	46	36	44.25	0.0	0.0
Q	3 COM CORP	28	18	27	1.9	8.8
N	US WEST INC	83	35	82.75	-0.1	-0.2
Computer Systems						
Q	ALLIANT COMPUTER SYS	9	5	3.5	0.3	7.7
Q	ALPHA MICROSYSTEMS	9	5	6.75	0.0	0.0
Q	AMDS COMPUTER SYS	11	6	7.125	0.0	0.0
A	AMPHYL CORP	26	16	17.625	1.4	8.6
Q	APOLLO COMPUTER INC	17	7	12.75	4.9	91.6
Q	APPLE COMPUTER INC	26	26	36.5	3.9	10.0
N	BOLT BERANEK & NEWMAN	10	9	9	-0.4	-4.0
Q	BRITTON LEE INC	4	2	6.75	0.0	0.0
N	COMPAQ COMPUTER CORP	75	47	74.75	4.5	6.4
Q	COMPUTER AUTOMATION INC	18	5	3.625	-1.0	-21.8
Q	CONCURRENT COMP CORP	9	4	4.375	-0.1	-2.8
N	CONTROL DATA CORP	28	16	22.125	-0.6	-2.7
Q	CONVEX COMPUTER CORP	11	7	10.375	0.8	8.8
N	CRAY RESH INC	26	33	53.25	-0.6	-1.2
Q	DAISY SYS CORP	12	4	4.5	-0.3	-6.3
Q	DATA GEN CORP	25	14	18.8	1.8	10.8
N	DATAPOINT CORP	5	4	3.625	0.0	0.0
Q	DELL COMPUTER CORP	12	7	5	0.8	10.3
Q	DIGITAL EQUIP CORP	122	86	97.75	1.1	1.2
N	FLOATING POINT SYS INC	9	2	2.875	0.0	0.0
N	HARRIS CORP	31	26	28.5	0.5	1.8
N	HEWLETT PACKARD CO	68	44	53.5	1.1	2.1
N	HONEYWELL INC	77	57	70.5	1.0	1.4
N	IBM	131	108	111.125	3.4	3.1
Q	INFORMATION INTL INC	16	12	15	-0.5	-3.2
Q	IPL SYS INC	7	1	6.375	0.8	4.1
N	MAI BASIC FOUR INC	21	7	6.25	0.5	8.3
N	MATRA-HATH ELEC INDL LTD	219	100	125	-2.5	-1.4
Q	MEGADATA CORP	2	1	1.313	0.1	5.0
Q	MENTOR GRAPHICS CORP	37	25	36.25	4.5	16.1
N	NBI INC	5	1	1.375	-0.1	-6.5
N	NCR CORP	70	51	56.25	0.1	0.2
N	PRIME COMPUTER INC	21	18	18.75	2.9	18.8
Q	PYRAMID TECHNOLOGY	20	11	18	0.8	6.1
Q	SILICON GRAPHICS CORP	25	14	15.625	0.8	5.2
Q	STRATUS COMPUTER	28	21	28.5	2.0	7.2
Q	SUN MICROSYSTEMS INC	21	13	17.875	1.8	10.8
Q	SYMBOLICS INC	5	1	2.313	0.8	12.1
Q	SEQUENT COMPUTER SYS INC	27	14	25.25	0.8	14.1
N	TANDEM COMPUTERS INC	21	12	19	0.8	4.5
N	TANDY CORP	36	26	43.5	2.0	6.1
N	ULTIMATE CORP	15	9	9.25	-0.4	-3.5
N	UNISYS CORP	26	25	26.625	1.1	4.4
S	WANG LABS INC	16	9	9	-0.3	-3.0
Software & DP Services						
Q	ADVANCED COMP TECH	4	1	2.75	0.0	0.0
Q	AMERICAN MGMT SYS INC	16	12	13.625	0.5	1.9
Q	AMERICAN SOFTWARE INC	23	12	22.75	2.4	11.7
N	ANACOMP INC	12	5	5.75	-0.3	-4.7
Q	ANALYSTS INTL CORP	18	7	17.5	0.8	2.9
Q	ASHTON TATE	20	19	19.25	-0.4	-1.5
Q	ASK COMPUTER SYS INC	16	12	14.75	1.4	10.3
Q	AUTODESK INC	38	23	32.125	1.9	6.2
N	AUTO DATA PROCESSING	36	26	36.625	1.3	3.7
Q	BMC SOFTWARE INC	17	5	16.5	1.1	6.5
Q	BOOLE & BABBAGE INC	17	9	16.5	0.8	4.8
Q	BRODERBUND LAND INC	16	9	13.9	1.6	5.7
N	COMPUTER ASSOC INTL INC	36	26	35	2.5	8.8
Q	COMPUTER HORIZONS CORP	12	7	8.125	-0.1	-1.5
Q	COMPUTER SCIENCES CORP	36	26	30.5	1.5	5.2
Q	CORPORATE SOFTWARE	18	5	16.25	1.3	10.8
N	COMPUTER TASK GROUP INC	17	10	14.25	-0.3	-2.4
Q	COSMOS INC	9	5	7.75	0.5	6.9
Q	COMSHARE INC	26	18	25	2.3	8.7
Q	CULLINET SOFTWARE INC	8	4	8.8	0.5	4.8
N	GENERAL MTRS (CLS E)	47	37	46.875	1.4	3.1
Q	HOGAN SYS INC	7	5	6.125	0.4	7.0
Q	INFORMIX CORP	23	7	7	0.5	8.0
Q	INTELLICORP INC	4	3	3.625	-0.1	-1.7
Q	KEANE INC	26	9	37.5	4.5	13.6
Q	LEGENT CORP	26	19	21.25	-1.4	-6.2
Q	LOTUS DEV CORP	26	15	20.625	0.8	4.4
Q	MANAGEMENT SCI AMER	14	9	15.125	0.5	3.0
Q	MICRO PRO INTL CORP	4	2	2.25	0.2	8.1
Q	MICROSOFT CORP	71	26	48.125	-2.5	-4.9
Q	NATIONAL DATA CORP	32	16	28.125	1.1	4.0
Q	ON LINE SOFTWARE INTL INC	11	4	6.25	0.8	4.3
Q	ORACLE SYS CORP	27	12	25.25	2.3	9.8
N	RANSOPHIC SYS INC	16	12	16.25	0.5	3.2
Q	PHOENIX TECHNOLOGIES INC	19	12	14	-2.5	-15.0
Q	QUALITY MGMT SYS CORP	27	21	25.25	1.0	4.1
Q	PROGRAMMING & SYS INC	18	10	17.5	0.8	4.8
Q	RABBIT SOFTWARE INC	5	3	1.75	-0.1	-3.8
Q	RELATIONAL TECHNOLOGY INC	21	12	18	1.8	12.1
N	REYNOLDS & REYNOLDS CO	61	17	20.75	1.5	8.8
Q	SEI CORP	22	18	18.625	0.0	0.0
Q	SHARED MED SYS CORP	26	14	17.875	0.1	0.7
Q	SMART SOFTWARE INC	10	5	5.375	-0.3	-5.8
Q	SOFTWARE PUBS CORP	27	12	22.75	4.3	23.0
A	STERLING SOFTWARE INC	9	5	6.75	0.1	2.1
Q	SUNGARD DATA SYS INC	26	18	14.25	-0.5	-3.4
Q	SYSTEMATICS INC	26	26	26	0.8	2.1
N	SYSTEM CENTER INC	21	13	13	0.0	0.0
N	SYS. SOFT INC	26	9	21.75	2.3	11.6
Semiconductors						
N	ADV MICRO DEVICES INC	17	7	9	0.8	4.2
N	ANALOG DEVICES INC	18	10	10.75	0.0	0.0
Q	ANALOGIC CORP	10	9	9.625	0.8	8.6
Q	CHIPS & TECHNOLOGIES INC	20	11	19	1.3	8.8
Q	INTEL CORP	37	19	29	3.8	14.3
Q	LSI LOGIC CORP	14	9	10.75	0.8	7.8
Q	MICRON TECHNOLOGY INC	25	15	18.25	-0.3	-2.7
N	MOTOROLA INC	35	26	45.375	3.4	8.0
N	NATL SEMICONDUCTOR	15	7	7.875	0.8	8.0
N	TEXAS INSTRS INC	35	26	40	1.1	2.9
A	WESTERN DIGITAL CORP	17	11	13	1.0	8.0
Peripherals						
Q	ALLOY COMP	4	2	2.25	0.1	8.8
N	AM INTL INC	9	5	9	-0.1	-2.0
Q	ARI RESH INC	17	5	5	0.8	10.3
Q	AUTO TROL TECH CORP	9	4	5	-0.1	-2.4
Q	BANCTEC INC	14	9	10.125	1.8	15.4
Q	CIPHER DATA PRODS INC	11	9	9.625	0.8	8.9
Q	COGNITRONICS CORP	5	3	3.938	0.1	1.8
Q	CONNER PERIPHERALS	10	7	7.875	0.8	5.0
A	DATAPRODUCTS CORP	18	9	17.25	0.5	3.0
A	DATARAM CORP	8	7	8.5	0.1	1.8
N	EASTMAN KODAK CO	36	28	45.75	-0.3	-1.9
Q	E M C CORP MASS	14	8	3.375	0.3	8.0
Q	EMULEX CORP	12	5	11.625	1.9	18.2
Q	EVANS & SUTHERLAND	21	13	17.625	-0.1	-0.7
Q	IDOT CORP	4	3	2.875	0.0	0.0
Q	INTERLEAF INC	19	8	8.8	0.8	8.8
Q	IOMEGA CORP	9	5	2.438	-0.4	-15.2
Q	LEE DATA CORP	4	3	3.625	0.0	10.8
Q	MAGISTER SYS CORP	4	3	2.563	0.0	7.9
Q	MAXTOR CORP	19	5	15	1.1	10.7
Q	MICROPOLIS CORP	26	5	7.25	0.0	0.0
Q	MINSCRIBE CORP	14	3	4.031	0.8	0.8
N	MINNESOTA MNG & MFG CO	70	57	67.625	0.8	1.1
Q	PERSONAL COMPUTER PRODUCTS INC	7	4	4.313	0.0	0.0
Q	PRIAM CORP	2	1	0.938	-0.1	-6.3
Q	PRINTRONIX INC	11	7	8.8	-0.1	-1.8
N	QMS INC	12	8	7.375	0.4	5.0
Q	QUANTUM CORP	19	10	18.75	1.2	8.7
Q	RECOGNITION EQUIP INC	12	8	8.375	-0.5	-5.1
N	REXON INC	8	4	6.875	0.8	2.8
Q	SEAGATE TECHNOLOGY	23	7	12.75	0.8	8.2
N	STORAGE TECH CORP	4	1	1.875	-0.1	-4.3
Q	TANDON CORP	8	1	0.875	0.1	7.8
N	TEKTRONIX INC	27	19	21	0.1	0.8
Q	TELEVIDEO SYS INC	1	0	0.375	0.0	0.0
N	XEROX CORP	97	80	84.125	4.5	8.0
Leasing Companies						
Q	AMFLICON INC	20	13	16.5	0.0	0.0
N	CAPITAL ASSOCIATES INTERNATIONAL INC	9	4	8.125	-0.4	-4.4
N	COMDISCO INC	26	19	23	0.1	0.8
Q	CONTINENTAL INFO SYS	9	0	0.875	-0.4	-30.0
Q	LDI CORPORATION	17	10	15.5	-0.8	-4.8
Q	PHOENIX AMERN INC	5	3	3.9	0.1	8.7
Q	SELECTERM INC	5	4	7.25	0.1	1.8

EXCH—N=NEW YORK; A=AMERICAN; Q=NATIONAL

Surprise buy

Hewlett-Packard's acquisition of Apollo startles stock market

"Everybody knew that somebody would buy Apollo, but nobody thought it would be HP," said an industry analyst last week as Apollo Computer, Inc.'s stock went wild after the workstation pioneer accepted Hewlett-Packard Co.'s $476 million offer. Apollo stock skyrocketed 4¾ points to 9 Thursday close at 12¾. HP stock closed at 53½, up ¼ of a point.

Before the Apollo/HP merger, the analyst said, "there was conventional war in the workstation world. Now it's thermonuclear war." Silicon Graphics, Inc. was one of the first affected. Broadsided by the HP/Apollo combination and also by Sun Microsystems, Inc.'s introduction of a spate of low-priced products, Silicon's stock dropped 1⅝ points to close Thursday at 14¼. Sun itself closed down ¾ points, at 17⅛.

Warnings of disappointing earnings to come are getting to be a weekly tech sector event. Last week's came from Relational Technology, Inc. The software vendor's stock dropped 3½ points to a Thursday close at 10¼ after announcing an impending first-quarter revenue shortfall and a $1 million to $2 million net loss.

NELL MARGOLIS

Sparc

FROM PAGE 1

ment Corp.'s 1-2-3 and Wordperfect Corp.'s Wordperfect are not among them. PC software giants Lotus, Ashton-Tate Corp. and Microsoft Corp. have yet to introduce products for Sun's workstations.

Also, Sun lacks retail distribution. Businessland, Inc. opted to carry the Next, Inc. workstation as its Unix offering. McNealy said there are no plans for Sun — which sells its systems directly and through OEMs and value-added resellers — to go retail with its workstations.

Even longtime customers of Sun's technical workstation were dubious that the Sparcstation 1 will move Sun into direct competition with PC manufacturers. Mark Vieler, a systems integrator at ESL, Inc., a Sunnyvale, Calif., defense contractor, said that Sun's MS-DOS emulator — a software coprocessor incorporated in its earlier 386I line — has exhibited bugs.

"We're aware of it, and we are in the process of correcting it," a Sun spokeswoman said. Sun said it learned three weeks ago that a problem with the software coprocessor significantly slows applications.

Terry Raleigh, president of Securities Trading Systems, a subsidiary of RMJ Securities in New York, said he would likely purchase the Sparcstation 1 for software developers at his firm. However, it is unlikely to penetrate general office environments.

"Bringing it in for general office applications would be a hard sell to management," Raleigh said. "In the administrative side there's much more shrink-wrap software available for PCs."

Others not committed to Sun workstations are even less likely to use them as an alternative to PCs. Phillip Gordon, manager of office automation systems at Charles Schwab & Co. in San Francisco, said his firm is not likely to buy the Sparcstation 1.

"It isn't a question of cost; it's a question of operating system," Gordon said. "We don't have Unix in mind, or DOS under Unix or any of the rest of it. We use DOS today, and we'll move to OS/2."

"Our users are DOS-oriented; they don't even care about Unix," said Ed Sund, PC support manager for Weyerhaeuser Information Systems. "Unless they're engineers, our users wouldn't look at a Sun workstation.

"I'd be interested in it if more business applications become available," Sund said. "But it's not even close yet."

Sun threw a flashy press conference to introduce what McNealy called the most important products in the company's history. In the style of its rival Next, Sun filled a San Francisco auditorium, staging a razzle-dazzle show of the Sparcstation's capabilities.

The announcement of Hewlett-Packard Co.'s acquisition of Apollo Computer, Inc., made earlier in the day, threatened to upstage the show. A united HP and Apollo will oust Sun, for now, as the market share leader in the technical workstation arena.

Sparcs are flying

Sun's Sparcstation 1 answers challengers with low cost and high power in a small chassis



- Dhrystone benchmark: 12.5 MIPS
- Processor: Sparc
- Clock speed: 12 MHz
- Main memory: 8M to 16M bytes
- Disk storage options: 104M to 1.1G bytes
- Base price (diskless): $8,995



SOURCE: SUN MICROSYSTEMS, INC.

CW CHART: JOHN YORK

Rollouts

Sun last week introduced a wide range of technical workstations and network servers based on Scalable Processor Architecture.

The Sparcstation family of workstations ranges from 12.5 to 16 MIPS and is priced between $8,895 and $73,900. Sun has augmented the line with Sparcserver, a line of network servers ranging from $28,900 to $71,900 and offering from 8M and 32M bytes of main memory.

Sun boosted its graphics capabilities and bolstered its Motorola, Inc. 68000 line with 68030-based workstations, priced from $5,995 for a desktop unit to $66,900 for a network server.

JULIE PITTA

HP

FROM PAGE 1

tween HP's and Apollo's workstations are their differing RISC architectures — Prism from Apollo and Precision from HP.

At this point, it appears that HP will keep both architectures. "The distributed computing environment lends itself to specialization," said Tony Pilarinos, HP's marketing manager of the workstation group. He envisioned that the Prism architecture would drive high-end servers attached to Precision architecture machines on the same network.

Carl Flock, an analyst at San Jose, Calif.-based Dataquest, Inc., said that the Prism architecture fit single-user high-end workstations better than Precision. "Precision was designed for large multiuser systems," Flock said.

Because both companies have products based on Motorola, Inc.'s 68000 series processor, those products will more easily be brought into sync.

Networking technology provided by Apollo through its Network Computer System will be pushed as a de facto standard because the product is already licensed by IBM and Digital Equipment Corp. as well as an earlier license by HP.

HP began opening its wallet last Monday, and by Wednesday reached for $476.4 million to buy the networking, graphics and RISC-based Unix technology of the workstation maker based in Chelmsford, Mass.

HP is also getting an installed base of 93,000 Apollo systems located in such premier user companies as Boeing Co., General Motors Corp. and Siemens AG, as well as distributor channels into 21 countries.

But HP, with $9.83 billion in revenue and $816 million in income, is buying a company whose recent fiscal outlook has been less than rosy, fueled by rumors of an impending third-quarter payroll shortfall. It borrowed $150 million this year just to meet operating expenses.

Last year, Apollo earned $2.2 million on revenue of $653.5 million — a far cry from its heyday. In 1984, the company racked up profits of $23.9 million while sales climbed to $215.9 million, but the following year its Midas touch disappeared.

Apollo took a bloodbath in 1985, losing $1.5 million while revenue growth slowed to $295 million. Runaway costs, late deliveries and poor customer service were the primary causes.

The HP alliance is expected to allay the fears of Apollo users while giving them an opportunity to buy a broader range of products from a single vendor. "For the IS manager, it means Apollo is a more stable company to buy into," said Bob Tasker, Apollo's MIS director from 1983 to 1986.

"It strengthens HP's [product] position up and down the line," added Tasker, now a strategic market analyst at International Data Corp. in Framingham, Mass.

While HP has made minor acquisitions such as a 5% stake in 3Com Corp. in February, it has refrained from sizable acquisitions since buying medical and scientific instruments companies in the early 1960s.

In a statement delivered through a spokesman, HP President John A. Young said Apollo's potential "is so exciting that we feel comfortable about diverging from our traditional approach to business development, which has not included major acquisitions."

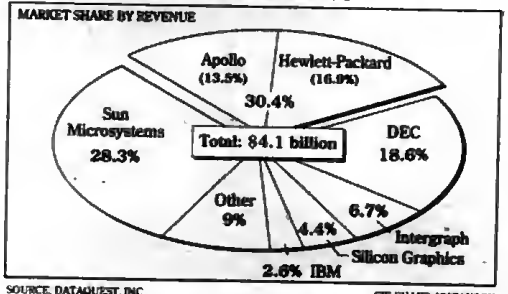
The move into workstation manufacturing positions HP as a rival to DEC and Sun. The announcement appeared timed to steal thunder from a major Sun rollout, according to analysts. Sun announced a line of workstations last Wednesday.

Yet, McNealy maintained, "For Sun, it's a nonevent. We're just plugging along straight ahead with our strategy."

"We're trying to understand it," a DEC spokesman said. "They're going to have to rationalize their product lines and blend multiple architectures and incompatible products."

King of the hill

Combined with Apollo, HP will vault over Sun and DEC to the top of the workstation heap, based on 1988 market share data



SOURCE: DATAQUEST, INC.

CW CHART: JOHN YORK

Users have their own questions after buyout

BY HELEN PIKE and J.A. SAVAGE
CW STAFF

The acquisition of Apollo Computer, Inc. happened so fast that users are awaiting details to be provided by the companies in the next week.

"We have meetings set up for this week to get more information," said Jerry Marynisk at McDonnell Douglas Aerospace Information Services manufacturing and engineering in St. Louis. Marynisk obtains most of his workstations from Digital Equipment Corp. but also provides Apollo, Hewlett-Packard Co. and Sun Microsystems, Inc. computers to internal and commercial users.

"Eventually, it could simplify products. It could reduce support cost and result in a better product," he said.

"It's too early to tell what will happen," said Apollo user Edward Rose, information systems manager at Epsco, Inc., an electronics equipment maker in Westwood, Mass. "The long term is very good for us because of HP's direction in computer-integrated manufacturing and MAP protocols."

Apollo customer Morrow Long, assistant development director at the Computer Science Department of Yale University in New Haven, Conn., was concerned about what will happen with each company's proprietary version of Unix. "With HP as the acquirer and Apollo as the acquiree, everything could go the HP way," he said.

Ross Miller, senior systems analyst at the Center for Productivity Enhancement at Lowell University in Massachusetts, voiced some trepidation. But, he said, "There are too many of us [Apollo users] to throw away."

Prime seeks friendlier buyer

BY NELL MARGOLIS
CW STAFF

Prime Computer, Inc. users appeared unflappable when MAI Basic Four, Inc. launched its hostile tender offer for the Natick, Mass.-based company four months ago. Many remained true to their vendor as Prime hung out a "For Sale" sign last week, but their faith appeared to be fading fast.

"Boy, was I ever wrong about MAI," said Dennis Love, data processing manager at Acme Thread & Supply, Inc. in Los Angeles. When the small Tustin, Calif.-based company first offered close to a billion dollars for the far-larger Prime, Love "took the whole thing as a joke. I never thought it would happen. Never."

Last week, on the eve of a possible court decision allowing the relentless MAI to renew its currently enjoined tender offer, Prime directed its investment bankers to actively solicit alternative buyers.

With morale low and coffers drained by months of fighting the takeover attempt, Prime's independence appeared short-lived. "I'm not laughing now," Love said.

Nor, he said, is his company's commitment to the embattled vendor unimpaired. Acme's Prime EXL "has been a real good machine for us, and I like dealing with the company," Love said. However, he added, with Prime on the block, there is no certainty that Acme's next computer, for which it is now actively shopping, will be a Prime.

"It will all depend on who the new owner turns out to be, and what they do with the company," Love explained. "If they're going to let Prime keep concentrating on R&D, fine. But if they're going to choke that off so they can get a quicker return on their investment, forget it — we'll probably go with the IBM RT."

Speculation has run high among analysts that MAI Chairman Bennett LeBow, a known "asset player," plans to parcel up Prime and sell off the pieces. LeBow has consistently denied that he will do so.

At Westminster College in Salt Lake City, director of computer services C. F. Herriott's feelings went beyond concern. "I'm not happy, I can tell you that," Herriott said. He described himself as "aggravated at MAI Basic Four" for threatening Prime's continuity.

Waiting for Sir Savior

If the Prime he knows is dismantled, Herriott went on, "our software vendor is planning to port to one of the Unix boxes, and I guess that's where we'll go." He still holds out hope that a compatible white knight for Prime will save the college from having to make that decision. "I would welcome a good solid company like Ford," he said. Ford Motor Co., Prime's largest customer, is the name most often mentioned when industry rumors turn to possible Prime buyers.

Bruce Wilkins, project leader at Denver-based Quinoco Petroleum, Inc., was quick to pledge allegiance to Prime, present circumstances notwithstanding. "I don't see myself running away from Prime just because they're for sale," he said.

However, Wilkins sounded less than happy the longer he considered the prospect of Prime under new ownership.

"I don't know what we'd do if someone bought them and just stopped making their products, or stopped supporting them," he said. "I guess we'd just limp along as best we could, but it would be upsetting not to have the support."

For now, Wilkins remains optimistic. "In the oil and gas industry," he said, "you learn to be a survivor. This industry is founded on rumors; if you believed them all, you'd go nuts."

Oil spill

FROM PAGE 1

made room for the more imperative task of mapping the spill, keeping track of lost wildlife and coordinating scientific search teams.

Coincidentally, two weeks before the spill, Erich Gundlach, president of E-Tech, Inc. in Narragansett, R.I., invested in mapping software for the express purpose of illustrating Alaskan shorelines. Gundlach, an expert in oil spills, grabbed his new Compaq Computer Corp. portable and digitizing tablet and headed for Valdez.

He joined Kendziorek at the courthouse and began compiling a database. "We took over the district attorney's office and supply closets. We used the law library for sleeping," Gundlach said.

As the oil slick spread, the state sought out more computers. For the mapping and database functions, there are now nine, including more Compaq laptops and three IBM Model 60s, "because they were the only thing around," Kendziorek said.

Every day since the end of March, Gundlach has boarded a helicopter with laptop in hand and made a series of landings to find out where the oil has arrived. He charts the different shorelines on Munmap — geographical object-oriented software from Generation 5 Technology, Inc. in Denver — to build a database for later use. The software links Autodesk, Inc. Autocad graphics with SQL relational technology.



WIDE WORLD

Aerial view *of oil disaster on shoreline of Alaska*

Back at the courthouse, Gundlach and Kendziorek, as well as other state employees and contractors, input and arrange data on the leading edge of the spill; the amount of live and dead wildlife; information from testing; and whatever other data comes to them on a daily basis.

Each day a new map of the spill goes out to government agencies and Exxon to help the crews battle the spill.

The database will primarily be used by the hordes of scientists, expected any time now in Valdez, who will be evaluating the spill.

As of late last week, however, the database was being pushed for the first time to facilitate a plan overnight to clean oil off the beaches, Kendziorek said.

While Ron Goodman, Exxon's manager of surveillance for the spill, criticized the state's database as unsophisticated, Exxon still has no database of its own a month after the spill, nor is it using the state's database.

Exxon is performing aerial reconnaissance but will not begin to put the information together until the company decides what systems meet its needs. Exxon has settled on one software package, Ashton-Tate Corp.'s Dbase IV, for shoreline mapping, according to Goodman. "We're aiming toward a number of systems that meet individual needs," he said. "We're still in a state of flux."

Despite the mishmash of hardware and the stress of working out a new application extemporaneously, the state at least has a handle on what the spill looks like. While that may not be of much assistance to the dead otters and shorebirds, it may help long-range cleanup and future spill contingency plans.

Air Products realigns its MIS reporting structure

BY CLINTON WILDER
CW STAFF

NAPA, Calif. — Air Products and Chemicals, Inc. will redistribute many of its central IS resources to its three business units next month, its top information systems executive said here at the Society for Information Management (SIM) Institutional Member Conference last week.

Peter Mather, vice-president of MIS at the $2.5 billion firm, said the reorganization is part of Allentown, Pa.-based Air Products' 10-year growth plan developed in 1987. As of May 1, each business unit's group IS director will report to the vice-president of that unit instead of Mather.

Mather stressed the need for an IS/business partnership at the line management level, not just between the top IS executive and chief executive officer. He admitted that the reorganization will probably increase overall IS costs, but the eventual benefits of strategically aligning IS with each business are worth it.

At Hunt Valley, Md.-based food company McCormick & Co., the results of a 13-year-old IS decentralization have been mixed, said Jack Thompson, vice-president of MIS. He claimed that changes in line management can upset the delicate partnership with IS.

"You get new people with no allegiance to you, your mainframe or your database," Thompson said. "But I still think it's the way to go. People get ideas [in the business units] that they never would have."

Several speakers agreed that it is management relationships, not technology, that drive the success or failure of strategic IS. "People are strategic," said Darwin John, vice-president of IS at Scott Paper Co. "Information technology is the enabler."

IS executives must manage their corporations' technology infrastructure but allow line managers to manage the use of the technology and see themselves as owners of its benefits, SIM members were told. "If they don't feel ownership, they won't view IS as an investment opportunity," Mather said.

Michael Scott Morton, an MIT Sloan School of Management professor, summarized the urgency of forging today's IS/business partnership. "It's not a question of competitive advantage," Morton said. "It's a competitive necessity."

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TRENDS

Apple in business

A few years ago, many would have said Apple Computer, Inc.'s chances in the business market were about as good as a weekend jogger's in the Boston Marathon. Some may still say that. But recent research by two firms suggests Apple is a genuine corporate contender.

Computer Intelligence (CI) in La Jolla, Calif., surveyed more than 10,000 Fortune-affiliated sites. Twenty percent of the organizations own Apple personal computers, more than 90% of which are Macintoshes. Although catching up with IBM — at 89% — would require a quantum leap, Apple is not far behind No. 2 Compaq Computer Corp., which has PCs in place at 30% of the sites.

The outlook is even brighter. Apple, at 6%, is just a step behind Compaq, at 7%, in market share of installed base. In similar CI surveys done one year ago, Apple logos graced only 4% of Fortune PCs. This upward trek should continue as Apple edges ahead of Compaq in PC purchases planned for the next 12 months, according to CI.

Although Apple's strides through office doors have been measured ones, business — especially big business — is the premier consumer of Macintoshes. International Data Corp. in Framingham, Mass., reported that 70% of Macs shipped in 1988 went to corporations, compared with only 48% in 1986.

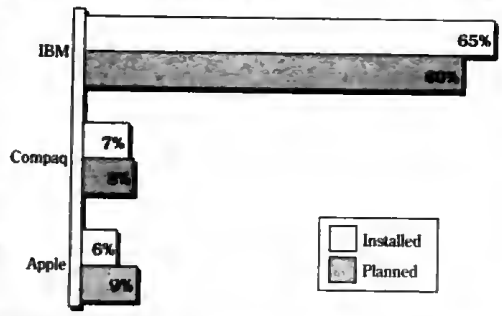
Apple's recent progress in corporate environs is attributable in large part to the Macintosh II and Macintosh SE. These machines offer increased memory, better performance and more expansion options than earlier Apple PCs and address the needs of corporate users. Coupled with eager support from third parties to supply a variety of connectivity products and business applications, the new Mac generation is aimed squarely at the corporate market.

Apple first got its foot in the door of big business with its graphics capabilities. When in-house publishing and art departments embraced the technology, Apple enjoyed a unique success. Now, as Apple stretches toward its goal of winning corporate acceptance, it must also keep a backward glance on stiffer competition for its graphics stronghold from traditional PCs. It may be a struggle up Heartbreak Hill, but Apple is in for the whole race.

LAURA O'CONNELL

Little headway made in Fortune 1,000

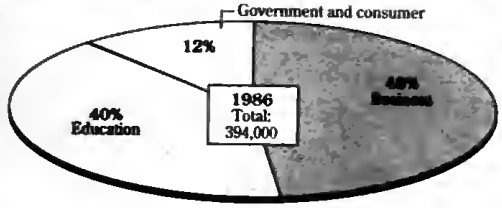
PERCENT OF PCS AMONG FORTUNE 1,000

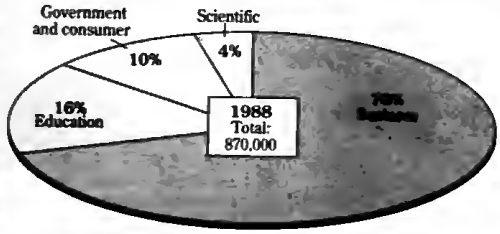


SOURCE: COMPUTER INTELLIGENCE

But business is biggest Mac market . . .

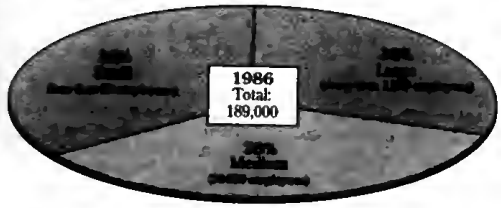
PERCENT OF MACS SHIPPED WORLDWIDE

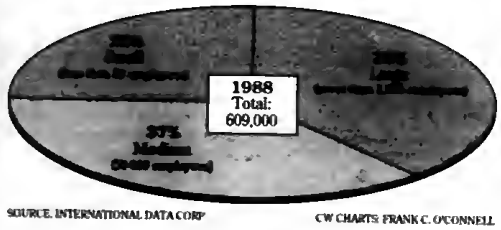




. . . especially big business

PERCENT OF MACS SHIPPED TO BUSINESSES WORLDWIDE





SOURCE: INTERNATIONAL DATA CORP

CW CHARTS: FRANK C. O'CONNELL

INSIDE LINES

Burning the midnight oil. IBM is reportedly playing catch-up to Storage Technology. Each user who opts for Storage Tek's automated tape library swaps out dozens of IBM 3480 tape-cartridge drives for compatible Storage Tek 4480 drives. IBM reportedly first called on Grau, a German robotic manufacturer, for help, but sources say the German machine, tested at IBM's Tucson, Ariz., facility last fall and at Rockwell in Los Angeles this winter, flunked. One observer who saw the unit called it a Rube Goldberg device that clanked along on a set of tracks; another said it was cumbersome. IBM is now apparently talking to yet another German manufacturer, C. Haushahn GmbH & Co.

That's secure service? U.S. Sen. David Pryor (D-Ark.) has called for an investigation into the Social Security Administration's use of its computer systems to help the TRW credit bureau, Citibank and others verify that they have the correct social security numbers for people in their databases. Pryor, not known for understatements, called it "the largest breach of privacy in the history of the program." Late last week, the practice was halted.

How the big boys play. Novell's bid to expand its Netware work groups into wide-area systems may be threatened by IBM' SAA Office, according to the Gartner Group's Steven Wendler. "Novell's success is founded in great part on holes in IBM's product line," program director Wendler said. At least 30 customers polled by Gartner said IBM has made comments that suggest it will tie SAA Office, with its Netview links, to Netware. This capability will allow users to preserve their LAN investments but grow with IBM SAA products. "If IBM can indeed provide equivalent functionality, then we may see a massive migration away from Netware," Wendler said.

A remote possibility. IBM's Remote Data Services (RDS) is a nifty but unshipped way for OS/2 users to access shared remote databases. In an IBM-only shop, these workstations had to have the expensive OS/2 Extended Edition running, but that won't be so once IBM completes a project that will bring RDS to MS-DOS, our sources say. Users of low-end DOS machines will then be able to talk to OS/2 Extended's Data Manager and eventually all IBM relational products.

Sail away. While the new products continue to roll smoothly out of Maynard, Mass., inside DEC, things are not so calm. The silent reorganization continues, with high-level executives of industry and channels marketing quietly slipping out of the picture, purportedly on leaves of absence or other conditions. On other fronts, DEC employees are heading into the fields to shore up sagging sales.

Somebody's mind was on something else. A shipment of weapons navigation computers was discovered amidst plastic liners and mattresses in a California water bed store. Eleven computers were supposed to arrive at McClellan Air Force Base near Sacramento, Calif., several weeks ago but were mysteriously diverted. The U.S. Air Force said that the cargo was "simply misloaded."

Hot off the street. The latest Digital Communications Associates acquisition rumor has Motorola preparing to bid for the assets of the former Cohesive Network, which DCA purchased in 1986. Cohesive provides DCA with its System 9000 T1 product line. Motorola owns Codex, which one analyst described as a direct competitor to DCA but with inferior technology.

Two weeks ago, we asked why everyone was smiling, given the gloom rampant in the industry. Readers called to ask exactly who was smiling. Well, now we know: Apollo's Tom Vanderslice must be grinning from ear to ear about the prospect of cashing in his golden parachute and heading off to that $2 million Cape Cod cottage we mentioned back on Jan. 16. If you spot some other would-be Cheshire cats out there, pass them on to News Editor Pete Bartolik at 800-343-6474 or 508-879-0700. For the computer-literate, interface at 508-626-0214 and 508-626-0235 (up to 2,400 bit/sec.) and 508-626-0165 (up to 9.6K bit/sec.).



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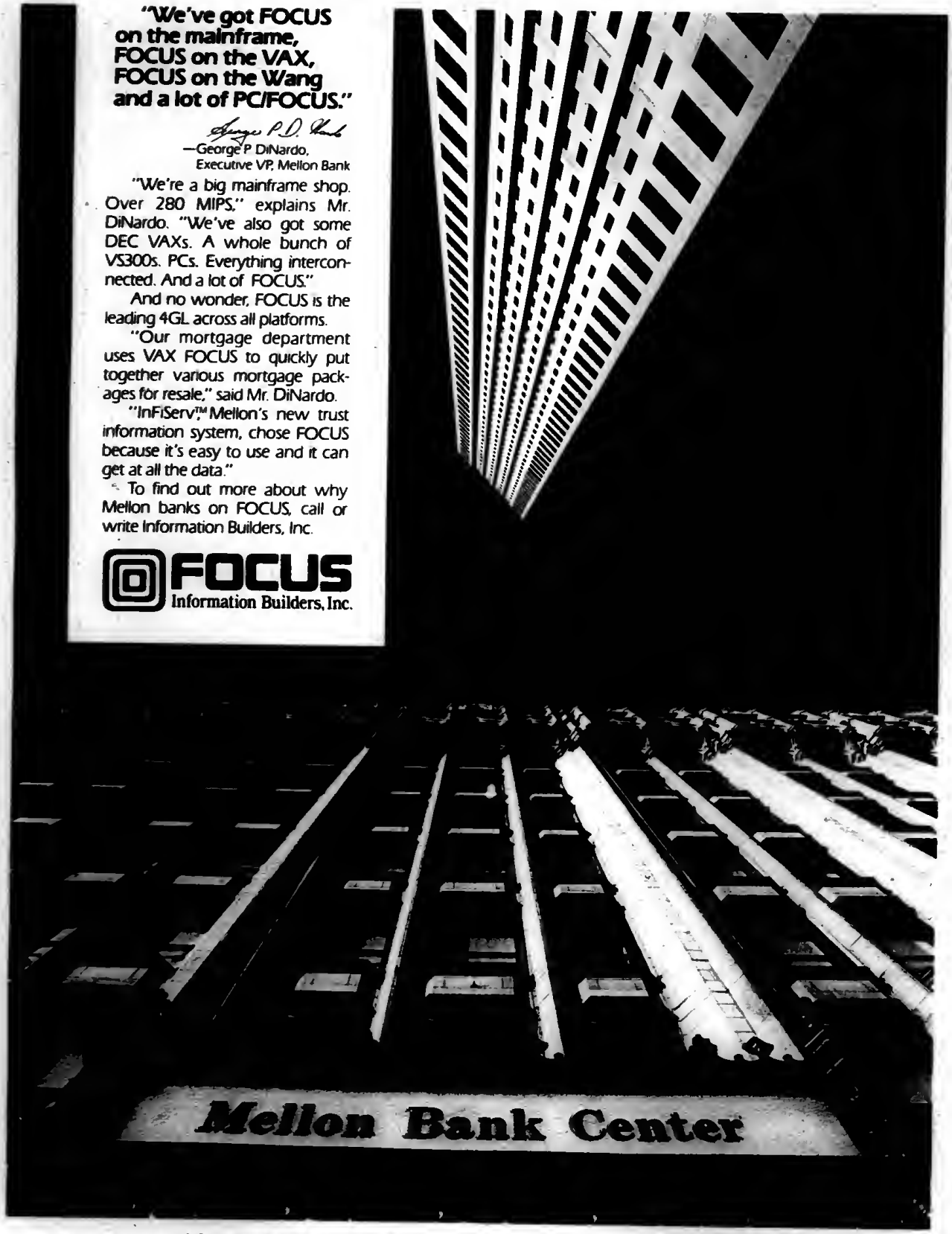
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Computerworld Editorial Calendar

Issue Dates		Ad Closing Dates		Editorial Features			Trade Show Distribution	
Computerworld Issue	Computerworld Focus on Integration	Color (any) Executive Reports Product Spotlights Premium Positions	B/W Display	Special Features/ Executive Reports	Product Spotlights	Computerworld Focus on Integration	Computerworld	Computerworld Focus on Integration
Apr. 17		Mar. 31	Apr. 7	Executive Report: Business Executives Assess MIS				
Apr. 24		Apr. 7	Apr. 14	Executive Report: Managing After a Merger				
May 1		Apr. 14	Apr. 21		Network Management Tools			
May 8**		Apr. 21	Apr. 28	Executive Report: Automating the Data Center				
May 15		Apr. 28	May 5		Manufacturing Technology			
May 22		May 5	May 12	Executive Report: Restructuring MIS — Distributing Resources				
May 29		May 12	May 19		Printers & Plotters			
June 5	(Ad Close: May 5)	May 19	May 26	Special Feature: Systems Integration Executive Report: Workgroup Computing		Integration Themes		PC Expo
June 12		May 26	June 2	Executive Report: Technology Issues in Downsizing				
June 19		June 2	June 9		Micro DBMS		PC Expo	
June 26*		June 9	June 16	Executive Report: Restructuring MIS — Organizational Impact of Downsizing				
July 3		June 16	June 23	Open				
July 10*		June 23	June 30		Software for IBM Midrange			
July 17		June 30	July 7	Section Feature: Networking — The Human Side of LAN Use				
July 24		July 7	July 14	Executive Report: Restructuring MIS — New Organizational Models				
July 31		July 14	July 21	Section Feature: Systems & Software — Preparing For Cooperative Processing				
Aug. 7	(Ad Close: July 7)	July 21	July 28		The Mac Market	Integration Themes		Networld
Aug. 14*		July 28	Aug. 4	Section Feature: Management — IS For Flattened Organizations				
Aug. 21		Aug. 4	Aug. 11	Section Feature: Computer Industry — 1992: Impact of European Unity				
Aug. 28		Aug. 11	Aug. 18		The DEC Market			
Sept. 4		Aug. 18	Aug. 25	Salary Survey				
Sept. 11		Aug. 25	Sept. 1	Job Satisfaction Survey 2nd Annual *Premier 100*			Networld	
Sept. 18**		Sept. 1	Sept. 8	Hardware Roundup: Large & Medium Scale Systems				
Sept. 25		Sept. 8	Sept. 15	Hardware Roundup: PC's, Workstations & Small Systems				
Oct. 2	(Ad Close: Sept. 1)	Sept. 15	Sept. 22		ISDN Products	Integration Themes	TCP/IP Conference	Info '89
Oct. 9*		Sept. 22	Sept. 29	Special Report: MIS in the 1990s			Info '89	
Oct. 16		Sept. 29	Oct. 6		LANs			
Oct. 23		Oct. 6	Oct. 13	Executive Report: Security in Open Times				
Oct. 30		Oct. 13	Oct. 20		The Unix Market			
Nov. 6	(Ad Close: Oct. 6)	Oct. 20	Oct. 27	Executive Report: Keeping Up with Service Expectations		Integration Themes		Comdex Fall
Nov. 13		Oct. 27	Nov. 3	Special Report: TBA (Comdex Show Issue)			Comdex Fall	
Nov. 20*		Nov. 3	Nov. 9***	Executive Report: IS as a Catalyst For Business Initiatives				
Nov. 27		Nov. 9***	Nov. 17		Modems & Muxes			
Dec. 4		Nov. 17	Nov. 22***	Executive Report: Computing in the Executive Suite				
Dec. 11**		Nov. 22***	Dec. 1		OS/2 Software			
Dec. 18		Dec. 1	Dec. 8	Section Feature: Management — Continuing Education For CIOs				
Dec. 25, 1989 & Jan. 1, 1990		Dec. 8	Dec. 15	Forecast '90				

* Starch Ad Study Issue ** Harvey Ad Study Issue *** Note Early Close

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